

HAM Pictures In DeluxePaint III?!



# Amazing

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For The Commodore

# AMIGA®

Volume 6 No. 4 April 1991  
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## DCTV:

# Meeting the Hype



### Fractals:

### Creative and Time-Saving Techniques

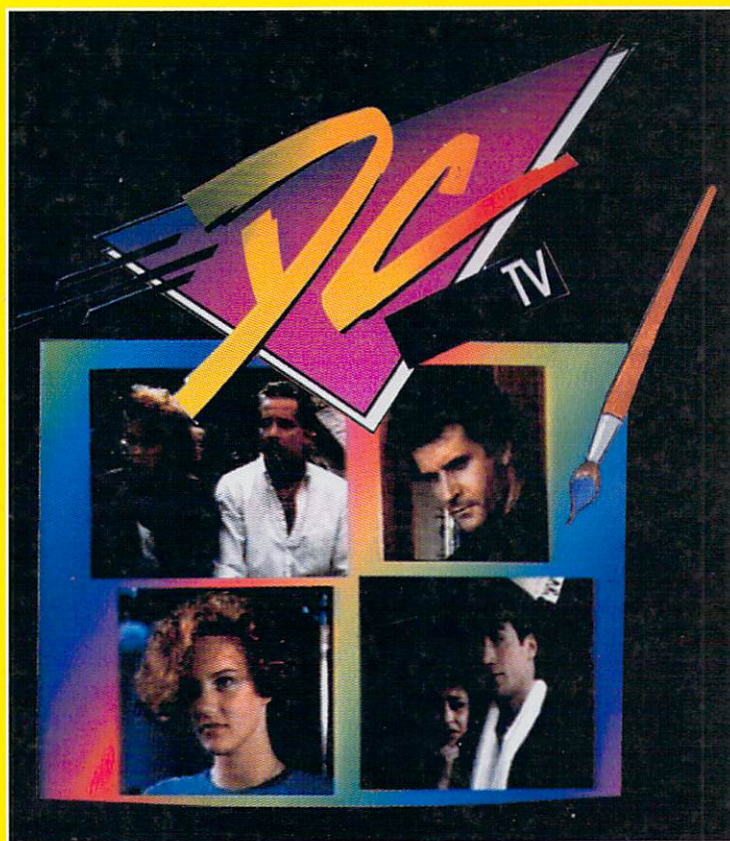
### Reviews:

QuickWrite

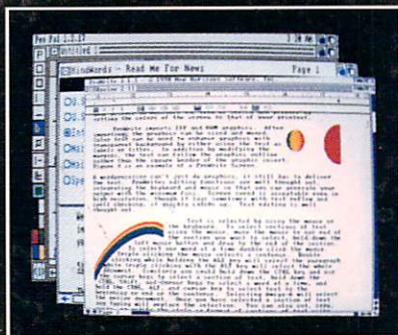
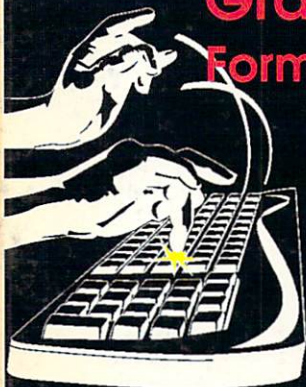
ImageFinder

Blitz Basic

Lemmings...and more!



## Graphic Word Processors: Form *Plus* Content





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**DCTV!**



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New Horizons developed this one with the low-end  
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Ernest P. Viveiros, Sr.

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and discover how  
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Lauren

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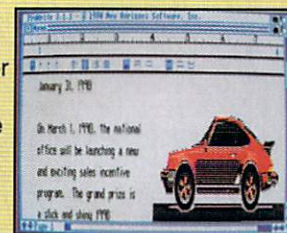
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ProWrite

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A word processor with graphics capabilities, a forms generator, and database manager all in one.

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To get you started on finding the right graphic word processor, refer to our series of charts detailing the major graphic word processors and their features.



To find out more about this little creature, check out "Diversions" this month.



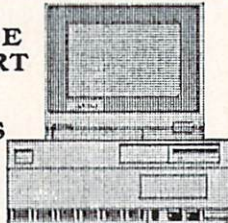
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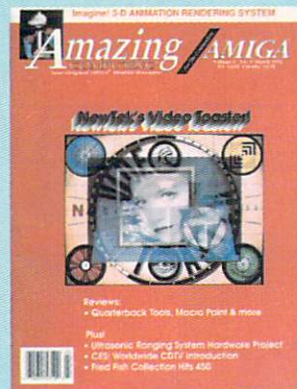
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The March issue of AC enabled Amiga users to quite vividly "Imagine" Impulse's next-generation, 24-bit rendering animation system.

As always, AC included some very helpful programming articles in March, plus a truly unique hardware project, and plenty of those in-depth reviews, columns and features you just can't find anywhere else.

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# EDITORIAL CONTENT

The problem with publishing a monthly magazine is that things change so quickly. As I have said in the past, I always reserve this space (and one other in the magazine) for the latest information. But, it still concerns me that the words I type today will not be read by you for at least several weeks. This is especially important with this issue.

As I write this, the war in the Gulf has ended and our troops have started coming home. It appears that life will return to normal. But in the U.S., we approach a drastically different problem.

The US economy has been, for some time, a troubled beast. The main responsibility of this has been blamed on high interest rates and higher fuel costs from last summer until now. Yet, economic conditions have changed and the price of gasoline is as low or lower than it was last summer and the interest rates have begun a slow descent.

What does this have to do with the Amiga? Consumer confidence—the feeling there is a tomorrow and that everything will work out. It is consumer confidence that allows individuals the freedom to buy a product such as the Amiga.

## The Christmas That Wasn't

This past Christmas season was not a banner success for Commodore and that was a shame. Commodore released their strongest line of machines to date. Last summer, it was hoped that CDTV would be on the shelves for Christmas. However, CBM did have a series of Amigas at price points far below similar machines of their competitors.

No one offered a machine with the advanced capabilities of the Amiga 3000 at its price. No one had a full functioning computer with the graphics, sound, and expansion capabilities of the Amiga 500 which sold in some areas for less than \$500. So why didn't we sell more Amigas?

At the time, the American buying public had been hit with six months of negative forecasts combined with the news of the S&L crises. Each time they put gasoline in their cars, they felt a little poorer. By the Christmas season, most consumers were in a wait-and-see mode.

Now, as the fires still burn in Kuwait and the world breathes a sigh of relief, our domestic concerns come to the forefront. Except the conditions are beginning to change.

## A Time for The Amiga

The Amiga has always had one solid advantage over its competition. It costs less. While this may seem an advantage, at times it has been the opposite. People believe what they wish to believe. If a product costs several points less than another, it is easier to assume that the lower costing product is not as good. This has driven many potential Amiga owners into higher priced computers.

But now, even as the economy does seem to be turning, the amount of available capital in corporate America is still tight. Just as companies are attempting to expand to secure larger market shares as the economy improves, they are going to find themselves working harder to justify expenses. Enter the Amiga.

For the same amount of capital required for a higher priced system, businesses can buy more computer (or computers, depending on your budget). The Amiga still offers one of the most cost-effective systems.

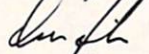
Where else, but in the Amiga market, do you have the range of hardware from video production to UNIX workstation. Software and hardware add-ons make the Amiga as helpful to a teacher or business training executive as it is to a graphic artist.

I have said it often in this column. Any computer is a tool and some computers are better at certain jobs than others. The Amiga's price may get it in the right doors, but it will remain up to the determination of this market to see that the machine is used fully and that it maintains the respect and position it deserves.

The future of the Amiga rest in the hands of its users and its developers. The users should demonstrate, wherever possible, how the Amiga can be used more cost effectively in businesses and homes. The developers should provide more of the quality products that will keep the professional markets interested after they have been attracted by the price.

We have seen the Amiga and the Amiga market mature in the last few years. Yet, this is the first time that the advantages of the Amiga could be so well played. The next few months could be extremely helpful to the Amiga market, if the world remains on its apparent course.

Sincerely,



Don Hicks  
Managing Editor

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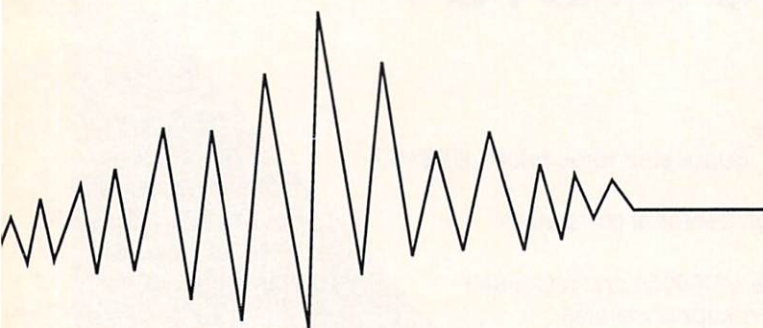
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# Feedback

## FLICKER DEBATE

I've been bemused by the strong words that have been crossing the table regarding the true origin of flicker on the Amiga. However, it seems to now be getting a little out of hand, with each explanation in "Feedback" being more complex than the previous. I'd like to try to settle the debate once and for all.

First things first. The Amiga resolutions or resolutions on any computer will never match the resolutions of NTSC. NTSC, by nature, is lo-res, it creates the "effect" of higher resolution by comprising each frame of two fields. The first field carries the odd scan lines; the second carries the even lines. Every computer and every Amiga resolution creates its own number of horizontal scan lines, none of which match NTSC's exactly. NTSC does its best to compensate, but usually what happens is that, for example, a single white pixel on a black background that is scanned onto the monitor on an ODD field scan line may not appear in the EVEN field of the same scan line. Forget Amiga clock cycles and analog sync signals; this on/off pixel appearance is what causes flicker. To demonstrate this flicker effect, go into a dark studio with a vectorscope, waveform monitor, sync generator, an Amiga and a monitor. Now turn everything off. Walk over to the light switch. Turn it off and on. Repeat excessively.

A less embarrassing test is to draw a one-pixel-high line across the screen in a hi-res paint program, transfer it to tape, and then use your VCR to slow the tape down to view it. You won't see a frame at a time, you'll see a field at a time...and your line will disappear every other field. An added problem is the short persis-

tence of NTSC video and Amiga RGB monitors. The scan lines come off too quickly. Long persistence monitors are more expensive but they keep the scan lines up longer, refreshing the display more effectively and reducing the flicker effect.

While there is some truth to the theory that some colors flicker more than others, it's not really certain colors, it's their amount of chroma (color) and luminance (brightness). Greyscale colors have no chroma so they seldom flicker. Red is very bright with a high chroma level, *plus* it usually breaks past the safe NTSC bandwidth. That's why it's so "dangerous." RGB can create higher chroma/luminance signals than the NTSC bandwidth can take, resulting in a different, but no less annoying, flicker.

Those tearing the Amiga apart with video test equipment need not. Every time you switch resolutions you're switching the amount of lines the Amiga is trying to squeeze into or line up with NTSC video. It's never going to do it. As I stated, other computers (e.g., Macs and IBMs) have the same trouble trying to match up to NTSC, so there is nothing "wrong" with the Amiga. In fact the clock cycle/frame rate compatibility with NTSC puts the Amiga ahead of the computer pack.

Now, time to regroup. The three main causes of flicker are:

1. Non-compatible resolution (to NTSC).
2. Chroma/Luminance exceeding the legal NTSC bandwidth.
3. RGB/NTSC short persistence scanning.

Cures? Plenty. Anti-aliasing. Avoiding one-pixel lines. Lower Chroma. Lower

Saturation. Stop standing in a dark room turning the light on and off (the whole world will flicker after 5 minutes of that). Turn down brightness and contrast on monitor. Avoid highly contrasting colors when painting. Buy a high persistence monitor. Use smoothing features. Avoid hi-res interlace if possible. Stick to lower resolutions. When doing video work *always* simultaneously view work on a composite monitor. And lastly, relax. Rather than debate the issue, let's work to cure the problem.

Frank McMahon  
Video Consultant, *Amazing Computing*

## STATING THE FAX

I use my Amiga mainly for programming and telecommunications. My question: Is there available a fax-modem for the Amiga (in addition to Applied Engineering's DataLink)? Also, what additional hardware or software is needed with a fax-modem? Can a fax-modem be used as a "regular" modem? And what is the difference between a fax-modem and a send-fax-modem?

Mark Schmitz  
Swannanoa, NC

— In addition to AE's efforts, Picture Vision also supplies a fax-modem, ImageMaker 96. Typically, fax- and send-fax-modems require a modem, an RS-232 cable and a telecommunications program of some sort. A fax-modem can indeed be used as a regular modem. Regarding the difference between the two types of devices, a fax-modem can send and receive a fax, whereas a send-fax-modem can only send a fax. — Ed



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# NEW PRODUCTS & other neat stuff

by John Rezendes

## DISC COMPANY DOUBLE-PLAY

The Disc Company has both a new release and an updated version of a product coming your way. First off there is **Harmoni**, a new MIDI sequencer program that combines a full range of professional features with an easy-to-understand user

interface. Musicians using synthesizers, drum machines, and any other MIDI-equipped instruments will be able to record and edit music sequences composed of up to 24 tracks.

An "Environment Window" allows the MIDI channel assignments to be fully orchestrated and played back with a full complement of instruments. The editing tools, four types of velocity scaling, three ways of arpeggiating chords, and the ability of combining tracks are all benefits to the program.

Harmoni is contained on a single 3.5" disk and runs on any Amiga with a minimum 512K of memory; however, 1MB is recommended. An Amiga-compatible MIDI interface, MIDI cables, MIDI-equipped instruments, and any equipment capable of sending and/or receiving MIDI data are also required.

Also from The Disc Company comes their updated program **Maxiplan Plus 2.0**, a full featured integrated spreadsheet/database program. With this program the user is provided with an integrated set of tools which stores text and numerical data, performs analysis and calculations based on that data, and displays the results graphically in more than 100 different chart styles. Maxiplan Plus allows spreadsheets and databases to be created with up to 512 columns by 65,530 rows, and there are over 70





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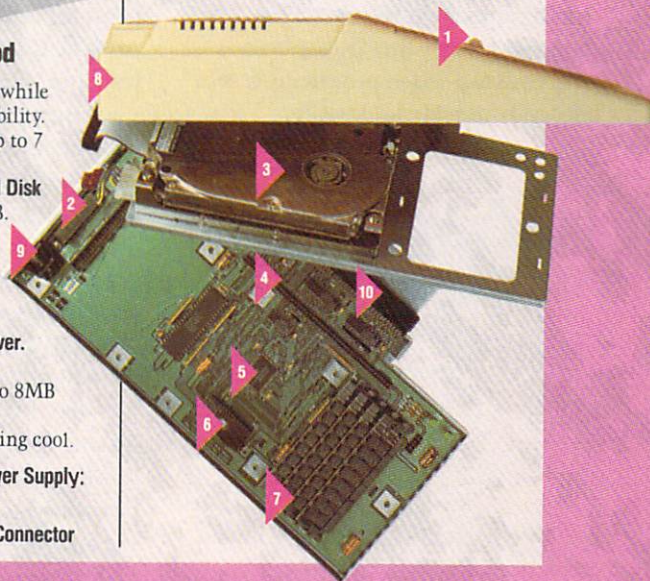
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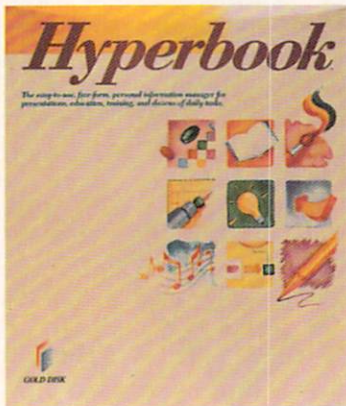
built-in functions for performing a bevy of scientific, statistical, and financial operations.

Features of Maxiplan Plus include an English-like macro language, creation of professional-looking charts, two-way linkage of data and charts so that the spreadsheet data is automatically changed as the chart is altered, simultaneous ascending and descending sorts on any number of fields, and quick sorts based upon any column information.

Maxiplan Plus is contained on a single 3.5" disk and runs on an Amiga 500, 1000, 2000, or 2500 with a minimum 512K of memory and 1 disk drive; however, 1MB of memory and 2 disk drives are recommended. *Harmoni*, price: \$99.95, *Inquiry* #208. *Maxiplan Plus*, price: \$99.95, *Inquiry* #209. *The Disc Company*, 11040 Santa Monica Blvd., Los Angeles, CA 90025, (213) 478-6767.

## 18 CARAT GOLD...DISK

Gold Disk has announced *MediaShow*, a multimedia sequencer for creating presentations and desktop video productions of all kinds quickly and easily.



*MediaShow* allows the user to harness the Amiga's power in combining and playing animations,

graphics, music, and sound effects. Also, an automatic loading feature of upcoming segments allows for long-running, continually playing animations without having to wait for the usual disk loads. Another program feature is a built-in video titler for overlaying text on top of movies with special effects such as multi-colored extrusions, shadows, and outlines.

Plus, there is a wide variety of built-in wipes, fades, transitions, and dissolves which give the presentations or movies a professional look and feel. *MediaShow* supports files from most paint programs, 3-D rendering and animation programs, music programs, and sound digitizers/editors. It will run on any Amiga that has at least 1MB of RAM and is Workbench 2.0-compatible. A hard disk is recommended, but not required.

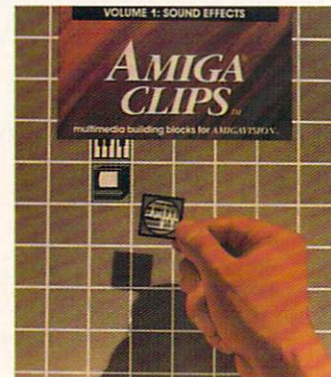
Also from Gold Disk comes *HyperBook*, an application generator that simplifies the process of creating, developing, and using personal and business applications, presentations, and interactive learning "books".

Users of all levels will be able to create personalized appointment calendars, address books, interactive greeting cards, visual multimedia inventory lists, business presentations with interactive charts and graphs, custom teaching "books", and free-form educational presentations.

"Books" can be created by linking text, graphics, pictures, and scrollable lists together. Buttons can be created to launch actions (showing a picture or additional text), DOS and ARexx commands, ARexx macros, or moves to other pages of a book for more interaction. Other features include control buttons for incremental control, full Amiga font

support, the ability to quickly crop IFF pictures and place them in free-form on pages, a wide variety of drawing tools, and the capacity of scaling, moving, and changing a design at any time.

*HyperBook* will run on any Amiga with at least 1MB of RAM and is Workbench 2.0-compatible. *MediaShow*, price: \$129.95, *Inquiry* #215, *HyperBook*, price: \$99.95, *Inquiry* #216, *Gold Disk*, 20675 South Western Ave. Suite 120, Torrance, CA 90501, (213) 320-5080.



## DID YOU HEAR THAT?

Commodore has released *Amiga Clips*, Volume 1: Sound Effects, the first set of multimedia building blocks creates sound effects to enhance any presentation.

Some of *Amiga Clips*' sounds include cymbals, bells, whistles, fog horns, gongs, pistols, thunder, wind, car starting, car horn, cat meowing, dog barking, rooster crowing, cougar roaring, clock ticking, alarm sounding, snoring, sneezing, applause, sonar pings, computer sounds, and a phone ringing. Human audio feedback such as "choose an answer", "correct", "try again", "click to continue", and "incorrect" are also part of the program.

*Amiga Clips*, Volume 1 will work with any Amiga product



which supports 8SVX sounds. *Amiga Clips, Volume 1*, price: \$29.95, Inquiry #213. Commodore Business Machines, 1200 Wilson Drive, West Chester, PA 19380, (215) 431-9100

### THIS IS FOR REAL...3D

Activa's Real 3D 1.3 is an updated version of the original program designed for solid modeling, ray tracing, and animation.

Features of Real 3D include a faster rendering time (by 50%), anti-aliasing adjustable in eight levels, support of 24-bit in IFF ILBM and Targa format, bump and clip mapping, 2-D animation in 3-D animation, turbidity, specularity, and specular brightness, polygon drawing, icon selection, and fog. *Real 3D*, update price: \$69.00, program purchased before 10/30/90 update price: \$149.00, Inquiry #210. Activa International, Keienbergweg 95, 1101 GE Amsterdam, The Netherlands.

### YOUR PRAYERS ARE ANSWERED

Neuralink has announced the availability of *The Context Bible*, *New International Version*, in Thinker hypertext format and with search files. Bible students, members of schools and churches, theologians, and missionaries will be able to write their own reference


Bible, commentaries, Bible study books, and sermons in both class and at home.

Features include interactively linked diagrams and charts, an instant jump cross-references to verses, words, and topics, up to 30 levels of selectively revealed outlines, search, sort, edit, and index. You can also underline, bold, italicize, color code, and link favorite verses, key words, and notes.

The Context Bible comes on 17 disks and part or all can be re-assigned to a hard drive, RAM, or other disk without changing any cross-references. Thinker 1.2 is required. New features of that program include a structured drawing program with ARexx control for interactive diagrams, links with sub-jumps and searches, and a browse mode. *The Context Bible*, price: \$120.00, including *Thinker*, price: \$160.00, Inquiry # 211. Neuralink, P.O. Box 16311, Lubbock, TX 79490, (806) 793-0423.

### CLEAR FOR TAKE-OFF

Spotlight Software, a division of Cinemaware Corporation, has released a combat flight simulator called *Air Strike USA*. This game blends both arcade action and

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## CORRECTIONS

It has been brought to our attention that the following error appeared in AC V6. 3, March 1990.

In a review of *Macro Paint*, it was stated that "As of now, the program (*Macro Paint*) does not multitask."

*Macro Paint* does indeed multitask under both 1.3 and 2.0. Because *Macro Paint* closes the

*Workbench* screen to conserve memory this may not have been apparent to the reviewer. The *Workbench* screen will not be closed if it is in use by another application (or even an idle CLI window).

We apologize for any confusion this may have caused.

strategy into a modern-day flying combat adventure. The player is in control of an *Advance Tactical Fighter (ATF II)*, with his combat arena encompassing the entire globe. The pilot will find air bases, fuel dumps, communications points, and factories strategically placed on the continents and islands. The goal is to assist the allied forces in the destruction or capture of these installations.

The *AFT II* is equipped with machine guns, air-to-air missiles, *AMRAAMS*, and *Maverick* missiles. Points are awarded for each successful mission. *Air Strike USA*, price: \$39.95, Inquiry #214. *Spotlight Software*, 4165 Thousand Oaks Blvd., Westlake Village, CA 91362, (805) 495-6515.

•AC•





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### World of Amiga New York Seminars:

**CLI Clips, Tips and Tricks • Jim Butterfield • Friday 10:30 A.M., Saturday 11:00 A.M. & Sunday 10:30 A.M. • Seminar Room A**

Join Jim Butterfield for a brief introduction to the Amiga's CLI (Command Line Interface) and its cousin, the Shell. Some of the most popular commands will be demonstrated. Next, a "Tricks and Tips" discussion will focus on how to make effective use of the CLI.

**Complete Multimedia Solutions - ShowMaker • Friday 11:30 A.M. • Seminar Room B**

The hot topic of the 90s comes to life here! See real-world applications of multimedia. Find out how to fully exploit the power of the Amiga to assemble, edit and play presentations integrating video, sound animation, text and music. See how ShowMaker talks to and controls external devices like the Video Toaster, laser disc players, VCRs and more with unparalleled ease, for dynamic and exciting presentations and video productions.

**CDTV • Gail Wellington • Friday 12:30 P.M. • Seminar Room A**

Meet the lady who delivered "Baby". Gail Wellington, Director of Special Projects for Commodore International, is the person whose key responsibility was to create and deliver CDTV software. Catch this rare glimpse of the magic lady as she demonstrates the amazing power of this remarkable new Amiga advance.

**Amiga Graphics, Animation and Video • Jim Sachs • Friday 1:30 P.M., Saturday 2:00 P.M., Sunday 1:30 P.M. • Seminar Room B**

This is an intensive three-hour session with renowned Amiga artist Jim Sachs, who has worked on Roger Rabbit, Ports of Call, Defender of the Crown, and 20,000 Leagues Under the Sea; he's also creator of the visual user interfaces for CDTV. Learn firsthand from an expert who's been highlighted in *Amazing Computing* and *AmigaWorld* magazines. Bring in your own artwork for critique by an expert.

**The Personal Information Revolution & HyperBook • Saturday 10:15 A.M. • Seminar Room B**

This is the age of interactive information. And with the introduction of HyperBook you can handle, manipulate, and create information in ways you never thought possible, without learning any complex commands or scripting. Also, a discussion and demonstration of how to create new ways of looking at and linking the information that affects your life.

**Introduction to Workbench • Jim Butterfield • Saturday 11:45 A.M. & Sunday 12:30 P.M. • Seminar Room A**

Commodore expert and well-known Compute! Publications writer Jim Butterfield will provide an introduction to the Amiga and its first-level user interface, the Workbench. The session will show the use of the mouse to manipulate icon, gadget and menu elements of the Workbench screen. A few simple programs will also be demonstrated.

**Keynote Address by Commodore President & General Manager Jim Dionne • Saturday 12:30 P.M. • Seminar Room B**

Long-time CBM employee Jim Dionne has worked in several divisions of Commodore over the years, and was one of the main people responsible for Commodore's successful presence in the Canadian market. Now, as President and General Manager of Commodore Business Machines USA, Mr. Dionne is faced with the task of bringing the Amiga to the attention of mainstream America.

**Bridging the Gap • Marion Deland • Saturday 1:00 P.M. • Seminar Room A**

This Bridgeboard tutorial is hosted by the publisher of *Crossings*, the newsletter for Amiga/PC compatibility. Learn to use the Bridgeboard to transfer and convert files, run PC software and take advantage of low-priced PC hardware. This seminar is a "must attend" for Bridgeboard owners!

**Publishing on the Amiga & Professional Page 2.0 • Sunday 11:30 A.M. • Seminar Room B**

Learn how to keep the edge in a highly competitive environment by creating professional documents, from flyers to newsletters to full-color ads. Using the Pantone Color Matching System, high speed text editing with the Article Editor, pre-press preparation, better and easier layout, through frame-based design. These are just a few of the subjects to be covered as publishing on the Amiga is taken to new heights with Professional Page 2.0.

### AmigaVision Workshops offered all 3 days!

**Cost: \$25 per session.** Extensive hands-on activities will be offered in these workshops conducted by Commodore representatives. Class sizes are limited to 20 people per workshop; each workshop will be supported by at least two instructors.

**Workshop 1: Introduction to AmigaVision • Friday, Saturday & Sunday 9:00 A.M. to noon**

Experience the advantages multimedia has over traditional presentation aids, and learn how easy it is to reap the benefits of these advantages with AmigaVision. Use Commodore's proprietary authoring system to create and present linear and branched presentations, see how to incorporate previously created graphics, sound effects, animations and transitions, and more!

**Workshop 2: AmigaVision Tips & Techniques • Friday, Saturday & Sunday 1:30 to 4:30 P.M.**

For those already using AmigaVision, an opportunity to learn more by working with other experienced users. Key topics include creating special effects with brushes, using IF THEN and IF THEN ELSE in the proper situations, achieving variable timeouts, working with the AmigaVision database manager, and more!



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# QUICKWRITE

Good Things *Do* Come in Small Packages

by Rick Broida

AMID THE PLETHORA OF word processors available for the Amiga, not one is targeted specifically to the low-end user. For those who don't need sophisticated graphics capabilities, dozens of fonts, or a table of contents generator, New Horizons Software has created QuickWrite, the first powerful, yet simple word processor for the Everyman.

The diminutive sibling of New Horizons' ProWrite, QuickWrite's distinction is definitely its size. Amiga 500 owners will be delighted to hear that it runs flawlessly with only 512K and is contained on a single disk (For the first time in years, having only one disk drive is not a hindrance). Even more impressive, the single disk also supplies a 50,000-word spell checker.

## HONEY, I SHRUNK THE WORD PROCESSOR

New Horizons may have crammed everything onto one disk, but they didn't skimp on anything. Like ProWrite, QuickWrite is a true WYSIWYG (What-You-See-Is-What-You-

Get) processor. Text justification, line spacing, styles, margins and tabs are all controlled by the increasingly common (albeit functional) word-processing ruler, which sits at the top of the screen. Any format changes made therein are instantly reflected within the document.

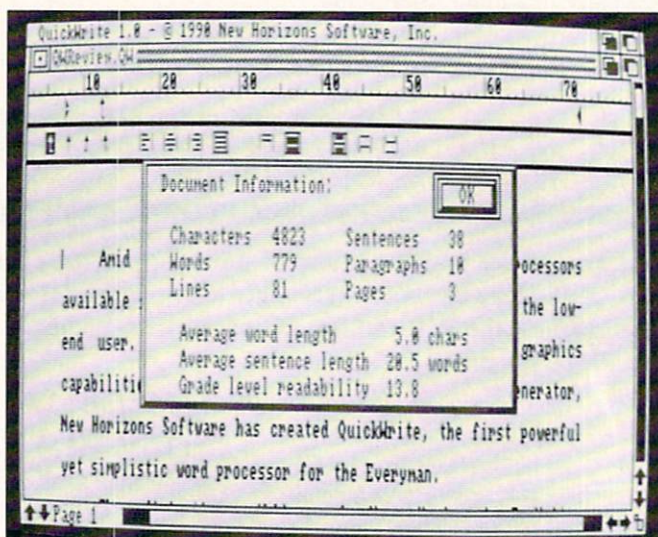
Simple icons on the ruler allow these changes to be made, although pull-down menu options can accomplish the same tasks. One useful feature is the ability to automatically insert a space before and/or after the start of a new paragraph. The ruler itself may be modified to display in inches, centimeters or 10- and 12-point picas, or it may be made invisible for full-screen editing.

QuickWrite offers all of the basic features you'd expect in a word processor. In addition to the simplicity of modifying text with the ruler, text may be easily selected for cutting and pasting. The standard bold, italic, and underline styles may be invoked as you type or entered afterward through a simple editing procedure. Colorizing your text is also an option. Left, right, center, and decimal tabs are selectable, and text may be justified to either or both margins or centered. In short, QuickWrite leaves nothing to be desired in the area of basic operations. Speed and simplicity are the motif.

## SHAKE HANDS WITH DTP

This ease of operation makes QuickWrite an ideal candidate as a desktop publishing word processor. A writer intending to typeset his/her material knows that a simple text editor is all that's really needed during the writing phase; mail merge, footnoting, and the like are superfluous. QuickWrite has the right stuff: quick and dirty operation and a spell checker. The programmers must have realized its potential as a desktop publishing word processor, having added the capacity to import and export Professional Page text files.

New Horizons' QuickWrite combines speed and versatility for the low-end user.





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- Meta4 and Meta4/500 provide 16 bit, 0 wait state, low power fast RAM. Meta4 is available populated or 0k and is expandable in increments of 512k, 1M, 2M, or 4Mbytes using 256k x 8 or 1M x 8 SIMM memory modules.
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### **SMALL MIRACLES**

This interchangeability is unique for a "small" word processor, perhaps excessive for those who don't need it but appreciated by those who do. Some of QuickWrite's other minor, yet useful features include automatic time and date insertion (available in eight differ-

have been removed or simplified for use within QuickWrite proper.

Also, certain parameters are not retained when you save a document. Under the View menu you may elect to make page guides visible or alter the ruler's measurements, but when you reload a document created with these

---

## QuickWrite isn't a heavyweight but it can go the distance.

---

ent formats, including automatic updating; document information, which offers among other things average word and sentence length and grade level readability (right now it reports that I'm writing at a college level--what an ego boost!); and a wonderfully written instruction manual, representative of the QuickWrite philosophy — quick, easy, and complete.

Printing is another trouble-free procedure and offers still more clever features. Pages may be printed in reverse order and even collated for multiple copies. And, although not many Amiga 500 owners use laser printers, I must add this note: QuickWrite does not suffer the same affliction as WordPerfect and Professional Page when utilizing the HP\_Laserjet printer driver. These two programs cause text to print way off center; a QuickWrite-printed page is perfectly centered. Congratulations, New Horizons, for hurdling a silly problem that the giants keep stumbling over.

### **SIBLING RIVALRY**

Because it's an imperfect world, QuickWrite has a few minor imperfections. First, the option to create macros (single-key commands which replace oft-typed phrases or keystrokes) is available, but only if you have the ARexx programming language at your disposal. The manual defends this shortcoming by suggesting that both macros and ARexx are for advanced users; I suggest that the option should

settings you must set them again. This is a minor glitch, but annoying nonetheless.

Finally, although much appreciated, the spell checker leaves something to be desired. It is understandably slow when run from disk (a hard drive speeds it up significantly) and misses words like "increasingly," "complements," and "icons". To fit the program on one disk, the dictionary couldn't be much larger than its 50,000 words. The programmers essentially had to rob Peter to pay Paul, but what Paul ended up with was a functional, yet incomplete spell checker.

### **THUMBS UP**

Any additional imperfections (I've yet to discover any) are overshadowed by QuickWrite's versatility and simplicity. Some word processors are overloaded with features, to the point of being overbearing. QuickWrite isn't a heavyweight but it can go the distance. This is the perfect word processor for beginners, low-end users, and those who don't need all the bells and whistles. It may even be the perfect text editor for desktop publishing.

New Horizons has joined the miniaturization trend with aplomb, successfully enabling the casual writer to get the most from a bare bones Amiga.

•AC•

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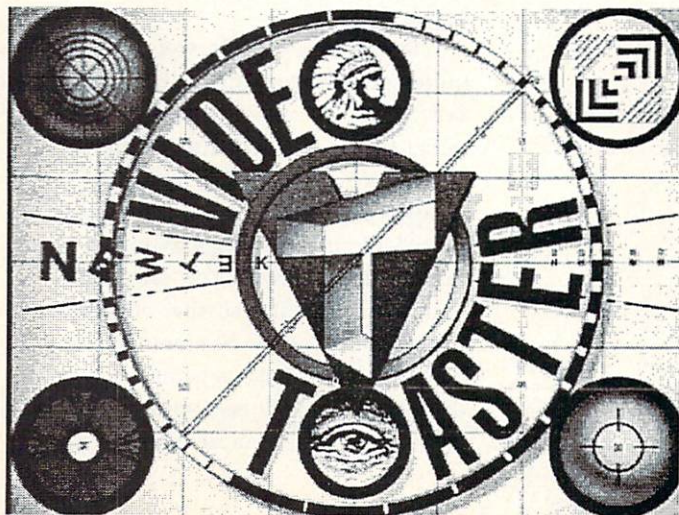
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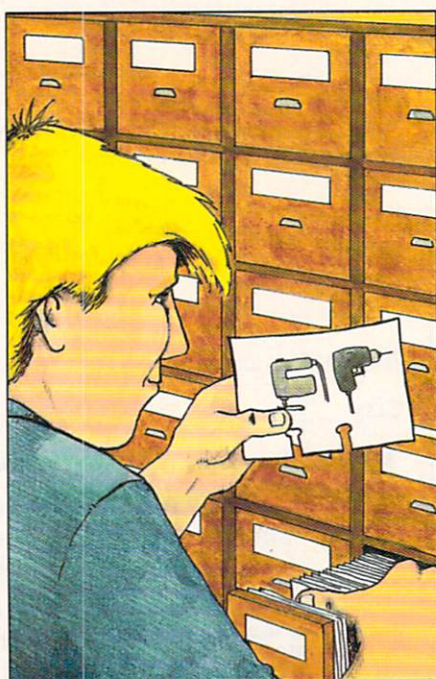
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# ImageFinder

by John Steiner

**I**F YOU PUBLISH A NEWSLETTER that requires clip art, you have probably been frustrated on numerous occasions by the difficulty of searching through your large clip art collection to find just the right piece that is appropriate for a particular story. Or, perhaps you have prepared a slide show of Amiga images and animations and have forgotten the name of a specific image you need to insert in your presentation. Now imagine this scenario: You open the Load File requester in your desktop publishing or paint program. Instead of searching up and down the directory tree while trying to remember which image fits with what filename, you simply hit the Alt-Left arrow on the keyboard. A screen similar to that shown on the opposite page appears. You use the slider to browse through the miniature images until you find the drawer and filename of the image you selected, and filename is automatically entered into the requester. The requester closes automatically, and the image is quickly loaded into your application.



It may sound far-fetched, but that is the basic function of ImageFinder from Zardoz Software. When I first heard about this program, I ordered it almost instantly. I publish several newsletters each year, and I have over 20MB of clip art and Amiga IFF images on my hard disk. I felt the program would make finding images much easier. My feelings turned out to be correct.

ImageFinder can also automatically call up a viewer program that will quickly load the selected full size image for closer examination. This is especially useful if you have images that look similar but have different text or small details that are not readily apparent on the miniature screen. Zardoz refers to these as thumbnails. The thumbnail images can be saved in eight or sixteen colors, black/white, or gray scale modes, and the size can also be specified when creating them. You can select a thumbnail image by clicking on it once, and you can have ImageFinder provide you with important information about the image, including the filename, drawer location, comments field, width, height, number of bitplanes, image type (high res, low res, HAM, etc.), creation date, and file size. On color images, the entire screen palette shifts to the palette of the selected image, so that you can use color to help identify the correct image. Images with more than sixteen colors are mapped to allow the thumbnails to simulate the original picture as closely as possible.

ImageFinder works well but requires a little preparation to be useful. Before you use the program for the initial time, you must first create an index file of images. This index file is composed of the thumbnails, as well as the other important image characteristics mentioned above. You can create multiple index files so that all your images don't have to be stored in one index. You can have several indexes open at one time in case your current task needs access to more than one set



of images. The program is a functionally complete database of file images that can be selected and sorted based upon file name, drawer, comment, date, or even picture information characteristics like image height, width, depth, density, brightness, or color.

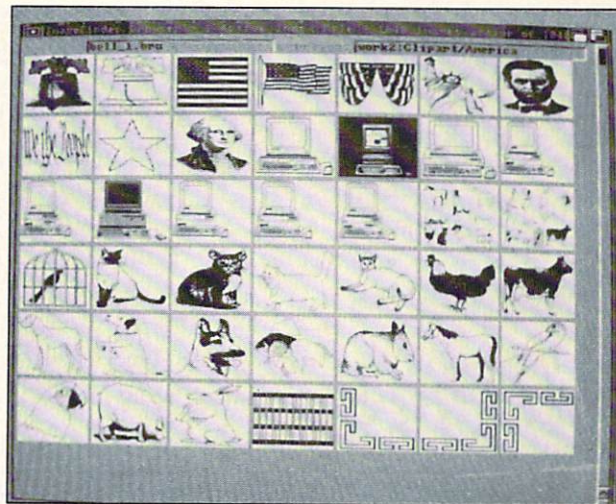
Creating an index takes time, especially if many of your images are high resolution 640 x 400 or greater. Fortunately, the program builds indexes automatically. You can tell ImageFinder to start creating an index in the evening, and when you awake the next morning, the index will be done. Even in a 68030-based Amiga, it can take quite a while to generate an index. Once the index is created, however, index maintenance is very simple. There are several update options that allow you to update the index easily. ImageFinder automatically remembers all directory paths and researches those directories, adding and deleting images from the index as necessary.

ImageFinder is best suited for use with a hard disk; however, you can also run the program on a floppy-based Amiga. The manual, nearly 50 pages long, is complete with descriptions of each menu item in the program, and includes a four page tutorial on program operation. Also the manual is amply illustrated with screen images of the major file requesters.

**YOU CAN TELL IMAGEFINDER TO START CREATING AN INDEX IN THE EVENING, AND WHEN YOU AWAKE THE NEXT MORNING, THE INDEX WILL BE DONE.**

Several image formats are supported including all standard IFFILBM, HAM, Extra-halfbrite, and 24-bit IFF images. ANIM files may also be included in your index, and you can even specify which frame number in the ANIM to use to create the thumbnail. Zardoz included the frame number option because many ANIMs might start with a blank opening frame or relatively simple image that makes identification of the ANIM by its first frame quite useless.

Browse through, select and load clip art from index files of thumbnail images with ImageFinder.



The program also has an ARexx port that can be used to operate ImageFinder remotely. When an image is selected from the ImageFinder, an ARexx program can be executed with the selected image's drawer and filename as an argument. The ARexx program can then execute other programs or operate on the image file directly. The ARexx drawer on the disk includes several simple ARexx commands which can be executed from ImageFinder's pull-down menu.

ImageFinder is meant to be running constantly, and it installs easily

with its automatic update feature, it will constantly monitor your operating system for additions, modifications, and deletions of images that are stored in the directory paths of the currently active index files. ImageFinder can even sense file renames and, in all cases, will automatically update your index files. The only caveat to automatic updates mentioned in the manual is that the feature only partially works under Workbench 1.3 or earlier. According to the manual, files created by your paint program will be detected correctly, but files copied using the AmigaDOS COPY command will not be. On systems with low memory, there may also be problems when ImageFinder loads overlays in handling the index modification. [Editor's note: A number of timing problems that resulted in hung systems or gurus when running under version 1.3 of the Amiga operating system have been fixed.]

A configuration menu allows you to adjust many preferences and settings so that the program automatically starts with the program operating under your favorite conditions. Another important selection is Hotkey Configuration. You can change the hotkeys that ImageFinder uses as they take precedence over your program's hotkeys. If the software you are using requires Alt-Left Arrow to perform a function,

under Workbench 2.0. You simply drag the ImageFinder icon into the Workbench Startup Drawer on the System 2.0 partition and drag the IView program into the SYS:Utilities drawer. Under Workbench 1.3, things are only a little more difficult. You must also edit your startup-sequence file to execute ImageFinder upon system startup. While you don't have to run ImageFinder constantly, you will miss one of the major advantages of ImageFinder's automatic index update. When you enable ImageFinder's auto-



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for example, you can change that hotkey in ImageFinder so that the application works properly.

I have been using the program with some regularity for over a month and have several separate index files for both my clip art images and my IFF graphics files. It's easy to change from one index to another as the application demands, and so far the program has worked as advertised. The system I am using is an A3000 with 6 megabytes of RAM. An acquaintance of mine who also uses the program has been running an A2000HD with 3 megabytes of RAM, and he reports having few problems with the software as well.

There are a couple of problems that might occur with the automatic filename and directory insertion feature. Some applications do not create standard AmigaDOS file requesters, and therefore they may not accept directory and filename entries from ImageFinder automatically. Zardoz has built-in a workaround for this problem that lets you use your mouse to click in the directory gadget, hit a hotkey and load the directory path, then click in the filename gadget, hit another hotkey to load the filename into the requester. The program automatically loads file requesters in Professional Page, DeluxePhotoLab, and DeluxePaint III

properly. The Art Department Professional won't load the file names automatically but will load easily with the hotkey workaround. [Editor's note: Problems involving certain file requesters, most notably The Art Department, have been fixed.]

If your work frequently demands that you hunt through hundreds of clip art or image files, you will surely find this program to be a real time saver. With a list price of \$65.00, ImageFinder might be a little expensive for a casual user, but for anyone who spends any time with Amiga graphics files, the cost is easily justified. The major limitation to the program is its inability to work with any file format other than IFF. Admittedly, if ImageFinder were to support Sculpt, Turbo Silver, Professional Draw, Draw 2000, and several other graphic file formats, it would be prohibitively expensive. I use Professional Draw extensively and would love to use the program in helping me search through my large collection of structured clip art. One solution to this is to create IFF versions of all of my structured clip art, and then use ImageFinder to create an index of those. Then I could use the individual hotkeys to load the drawer location, then the filename. I could then edit the filename to select the Professional Draw filename, rather

than the IFF filename. The only reason I haven't attempted this yet is the relatively large amount of time it will take me to create IFF equivalent images for ImageFinder to scan.

Though I have not tested ImageFinder with more than half a dozen or so applications, it has worked with everything I have tried. Zardoz seems to have done their homework when designing the program's interface into the Amiga's operating system. This program has already earned its space on my hard disk. [Editor's note: The 1.0D update fixes several problems that were encountered in the initial release of the program. A problem with some volume names having garbage characters in the file requester was fixed. Also, if a large number of files were in the Rextx:directory, not all names with an ".imf" extension appeared in the menu; this has been fixed. Anyone having an earlier version that sends in the registration card receives a new disk free of charge. A final update will be available in the early summer for users who have the initial version of ImageFinder.]

•AC•

ImageFinder  
Price: \$65.00  
Inquiry #224  
Zardoz Software  
6114 La Salle Ave. Suite 304  
Oakland, CA 94611  
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# DCTV

by Frank McMahon

DIGITAL  
CREATIONS'  
DIGITAL  
COMPOSITE  
TELEVISION

IN THE WORLD OF AMIGA VIDEO there has always been one complaint among users: color limitation. It used to be that 32, 64, or even 4096 colors once seemed like more than anyone would ever need. These days, that's just not enough to be competitive — it's not enough to render realistic computer drawings, digitized frames, or 3-D images/animations. Now, with the current popularity of 24-bit boards and hardware devices, 32 colors in lo-res is quickly becoming a thing of the past. New advances are allowing for millions of colors in high resolution. DCTV has certainly had its share of hype centered around its avowed ability to digitize, paint, and animate in full NTSC color and resolution. The ability to manipulate millions of colors in real time on an Amiga was a claim I approached with some skepticism. Is it possible for such a relatively inexpensive hardware device? We're all in for more than a few surprises.

*The ability to  
digitize, paint,  
and animate in  
full NTSC color  
and resolution?  
DCTV proper  
meets the hype  
head on.*

---

## SETTING UP

The DCTV package contains a manual, four disks containing the program (along with plenty of example pictures), and a black box with several connections. The box has a Video In (RCA jack) for inputting a camera/laser disc/VCR for digitizing, a cable that runs out to the Parallel Port and is also used for digitizing (users of the 1000 will require a standard gender changer), an RGB Port cable which connects between the Amiga RGB output and monitor cable, a Tint Adjust screwdriver-adjustable pod (all DCTV units are factory preset and should not require adjustment), a Pixel Adjust knob, and a Video Out (RCA jack) for output to a monitor or VCR.

Installation takes about five minutes. After the cables are hooked up, the user must load a test pic and adjust the sharpness of the program output with the Pixel Adjust knob. The manual states that this adjustment is necessary due to differences among Amiga models.

One thing we learned last month with the Video Toaster is that you can't use a genlock with the Toaster. DCTV suffers from a similar problem. Since it uses the RGB port, it will not work with RGB-port genlocks. However, Digital Creations has remedied this by offering the "DCTV-RGB Converter" (available separately) which allows compatibility with their SuperGen genlock products. This device, the DCTV



manual states, converts the video output of DCTV into an analog RGB signal; it also allows DCTV output to be mixed with outside video. This adapter was not included in the review package, and a call to Digital Creations' customer service line revealed that the unit is not even available but should be out in "a few months."

While the package is easy to hook up and only requires a minimum of 1 meg, there is another necessary item which can be easily overlooked: a good monitor. The Amiga monitor will only do a substandard job in handling video through the composite inputs. Most RGB computer monitors are not designed for video use, but a composite input is an inexpensively added feature for manufacturers.

There is an easy way to test your monitor. First, get an RCA cable and run it from the mono output on your Amiga (or your genlock output) to your composite input on your monitor. Switch from RGB to composite mode and then load up a paint program in hires mode.

Some monitors will provide a crisp display, but most will suffer blurring and ghosting. (You can also test regular RF TV's by running the video out of DCTV and into your VCR.) Since the regular RGB Amiga signal is ghosted, and the painting and digitizing take place in real time on the composite screen when using DCTV, I would recommend a high-quality video monitor for professional use. Also, the RGB Converter may fix this problem by letting the user work in RGB mode with DCTV, which is the ideal situation.

## ***DIGITIZING***

Detailed tutorials of almost all the program's features constitute a good portion of the first half of the manual.

For 1-meg users, the program is broken up into two parts, but almost all features are still available. The main feature missing for 1-meg users is a swap screen. As in any paint program, the more meg the better, and to use DCTV's swap screen a minimum of 2 meg is required.

After setting up options such as closing the Workbench, allowing a Swap page, and designating the quick save path (it's usually RAM:), you enter the Digitize-and-Process element of the program. You can choose from

**The DCTV program comes complete with a multitude of demo shots evincing its capabilities.**



Camera or Tape for your source input. You can also select Interlace or Overscan. A Filter is added to decrease noise in your captured image.

Quality and Speed allow you to make some sacrifices if your video signal is not up to par. A quicker speed (1-3) will produce a more useable frame of an unstable video source, but there will be a lack of quality. Capturing an image is as easy as entering scan mode,





Scenes from a cable TV series directed by author. Images were scanned in non-interlace mode and assembled on a hi-res screen with a gradient background.

and then hitting the left mouse button to digitize or the right mouse button to cancel.

After an image is captured, the color amount, tint, brightness, contrast, sharpness, and the red-green-blue volume can easily be adjusted through a panel of sliders. You are only altering the screen display (shown through the video out) and not the internal buffer. This provides an excellent opportunity for experimentation. Only after you've hit the "Commit" button will the buffer be altered and your captured image permanently changed.

So how's the quality? Well, it's important to understand that DCTV is a "still-frame" capture system. The source being captured must remain still (free of movement) for 6 to 10 seconds while the program scans. Examples would be any video camera or special laser disc/VCRs that feature a digital freeze frame. This is different from pausing a tape because the digital freeze frame is stored internally with a consistent time base, allowing for perfect scanning. Pausing a tape would not produce a consistent signal because the heads would be constantly moving across the tape.

Back to the quality issue: it's entirely dependent on your source. If you have a nice stable source, your quality will be stunning. Because you are working in hi-res overscan with 16 million colors, the image you grab will appear very similar to the original. No more settling for HAM mode or trying to squeeze a frame into 32 colors and dithering it to death in a desperate attempt to produce a hint of realism. With this program there are no sacrifices in digitizing quality, to which Digital Creations' demo pictures readily attest (of course, transferring to video or videotape from any analog source does result in some loss of color and resolution).

What about grabbing off videotape? Well, I decided to capture some frames from a cable TV series I direct.

The masters were on 3/4-inch SP, but I used a S-VHS dub of the shows. As I paused each image and scanned it, I got mixed results each time. Since each video frame consists of two alternating fields, scanning from tape with interlace turned on provided unusable results. I found that the best results with videotape were achieved with the following settings: source:tape/lace:off/filter:on/quality:hi/speed:1/depth:4.

After several tries, the end result was a good quality, non-interlace screen. I found that if I grabbed a frame from tape in non-interlace mode, halved it, and then placed it in an interlace hi-res picture using the paint program, the results were excellent. Digital Creations promises better tape results in future updates. As for Camera/Still Frame results, the quality is about as good as a computer can get. Scanning and processing takes 10-30 seconds in most cases (dependent on memory/processor), with the hi-res/overscan and millions of colors making the pictures truly realistic.

---

***DIGITIZING QUALITY IS ENTIRELY DEPENDENT ON YOUR SOURCE. IF YOU HAVE A NICE STABLE SOURCE, THE RESULTING IMAGE WILL BE STUNNING.***

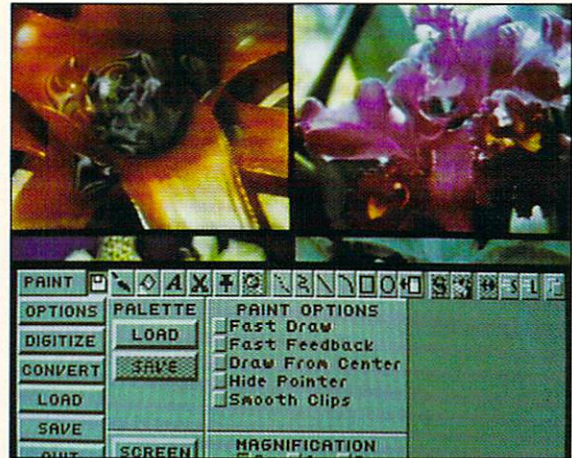


## PAINTING

The core of DCTV is its included paint system. The screen can be 3 or 4 bitplanes with options to turn on/off interlace and overscan. The paint panel takes up the lower half of the screen and can be easily moved via the function keys or the mouse. The top of the panel includes paint tools like Flood Fill, Text, Scissors (clip), Tack (paste), Magnify (2x, 4x, or 8x), Dotted/continuous freehand line, Straight line, Curve, Rectangle, Ellipse, Draw filled, Stencil, Stencil draw (for creating your own 1-bitplane stencil mask), Swap page, and Quick save/load. To abort operations, just hit the space bar. There is no true Undo command, but one is promised as a feature in the next update.

A palette of 36 colors can be on screen at once with the option to load or save a palette. To the right of the palette is the "mixing area". This truly incredible feature allows you to add any of the 16 million available colors and spread them around, via a command like Watercolor, to create custom colors.

Once a new hue is created, just click on it (holding down the shift key) to add it to the palette. This is the video equivalent of mixing oil paints on a palette board and really



sets DCTV apart from existing Amiga paint programs. Color can also be controlled by sliders featuring the red-green-blue, cyan-magenta-yellow, hue-saturation-value, and hue-lightness-saturation options.

Eight different brushes come in 20 sizes each. X/Y lets you change the height and width of the brush by percentage. Flow ad-

**The core of DCTV is its included paint system.**

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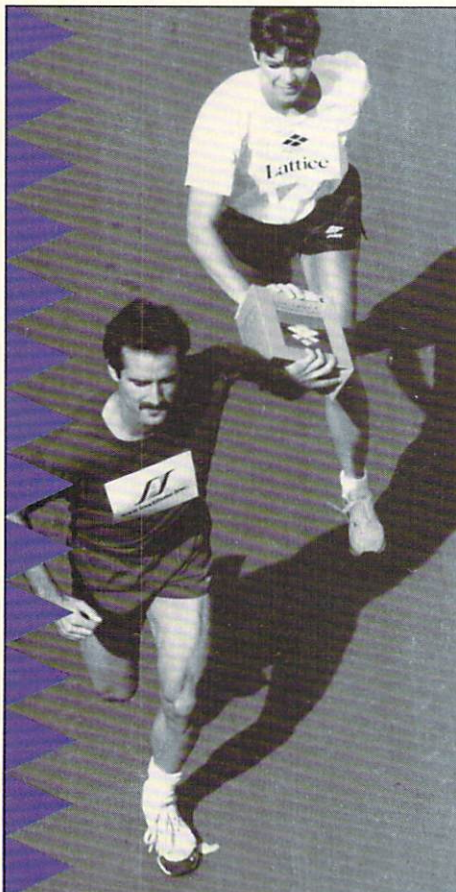
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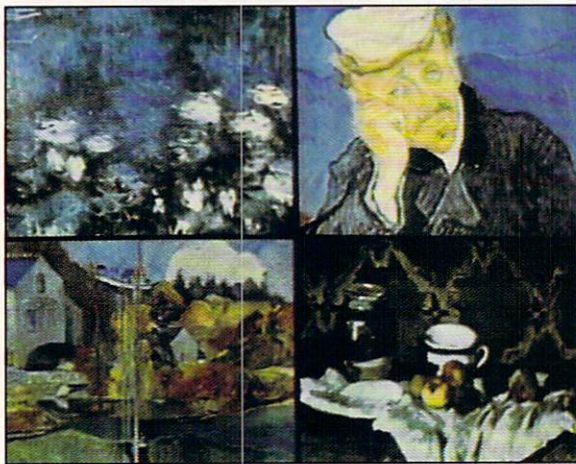
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justs the rate at which the paint is applied to the canvas for airbrush effects. Tint uses the chrominance (color) level of your selected color to paint, and Shade uses the luminance (brightness) amount. Watercolor creates beautiful effects as it smears and, with more than a hint of realism, runs out of paint as the stroke progresses. Blend allows for the mixing of adjacent colors. Smooth smooths out whatever is underneath your brush strokes, and Rub Thru lets you remove part of the canvas to reveal the same part of the swap page. Filter attempts to correct false colors, fringing, or other undesirable effects in pictures that are imported into DCTV.

DCTV's Fill options are extensive. They include Solid (Color/Rub Thru/Filter), Gradient (Border/Horizontal/Vertical/



**There are no sacrifices in digitizing quality, to which Digital Creations' demo pictures readily attest.**

Linear/Radial/Four Point), Pattern (Tile/Brick/Wallpaper), and Warp (Horizontal/Vertical/Point/Four-Point). Highlight is also available with options for highlight direction.

The Gradient panel is perfectly executed with smooth transitions of up to 25 colors in one spread along with a Dither slider. With the millions of colors, the Dither slider actually "roughs up" the transitions rather than in traditional Amiga programs where it tries to "smooth out" the color spread. Experimentation with the Gradient spreads and multitude of colors, combined with the different options such as Linear and Four Point, can produce some fantastic color combina-

***IMAGES FROM DCTV CAN BE LOADED INTO OTHER PROGRAMS AND DISPLAYED IN FULL COLOR AND RESOLUTION PROVIDED THE PROGRAM DOES NOT ALTER THE PICTURE AS IT IS LOADED.***

tions. Warp simulates perspective by wrapping a clip (brush) around an object. Warp Factor (how severely the clip will wrap) is also available.

Stencils are available, allowing the user to choose any color as the stencil color and create mattes to protect the current drawing. You can even make the Stencil transparent so that, although it is still visible, you can see what is underneath it. Stencils can also be saved and loaded. Text support allows any Amiga font to be used. Words are typed in and then turned into a clip. This clip can be then manipulated and stamped anywhere on screen. Style and Aspect Ratio controls are also available. A Display area previews the size, style, and aspect of the currently selected font. Clips can be picked up from anywhere on screen. Clip options are Rotate Free, Rotate 90 Degrees, Flip X, Flip Y, Bend X, Bend Y, Shear, Resize, Halve, Double, Restore, and Paste. All Clip features can be used on text as well.

## CONVERT

DCTV includes a Convert section that lets you transfer created images to standard Amiga graphic formats. Options include full color adjustment as well as brightness, contrast, sharpness, and dithering. Almost any resolution and number of colors (2-4096) are available. "No Color 0" will remove the first color and will not allow video to show through when using a genlock. Color controls included are Copy, Swap, Keep, and Free. Moving from the full color and resolution of a DCTV image to lo-res or 32 colors is kind of a letdown in the quality department, but Convert does a fine job and provides great results with options like Sharpen and Dither.



## COMPATIBILITY AND 24-BIT ANIMATION

By now, we've all seen the slick DCTV magazine ads. What intrigued me most about them was the claim that DCTV "works with all 3-D programs" and "animates in full NTSC color." Well, the good news is it does! Images from DCTV can be loaded into other programs and displayed in full color and resolution provided that the program does not alter the picture as it is loaded (you must have a DCTV unit plugged in as well).

The manual gives as an example "The Art Department", which loads an image and converts it to a 24-bit IFF. This conversion routine corrupts the DCTV control information, which is located on the top scan line and along the side of the picture. (I should mention that even though it's a "bad" example, "The Art Department" is an excellent conversion program that I use at work on an almost daily basis.) Most programs don't alter the picture; the manual lists several programs that have been used successfully: DeluxePaint III, Disney Animation Studio, Sculpt, Turbo Silver, Imagine, and AmigaVision.

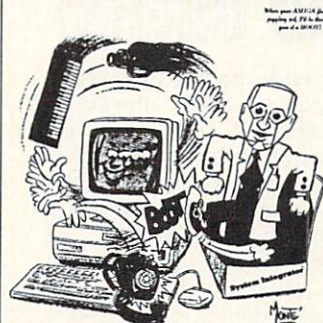
To test this, I first went into Imagine and rendered a couple of spheres with various textures such as wood and glass. Instead of HAM I rendered the picture to RAM as a ILBM 24-bit file containing information for 16 million colors. I then loaded the file into DCTV, and it displayed without a hitch on the video output monitor in full hi-res with millions of colors. I then saved it back to RAM as a DCTV display file. Booting up DeluxePaint III, I entered hi-res mode and then loaded in the Imagine pic saved in DCTV format.

The RGB screen displays what it thinks is a typical 640 x 400 hi-res image, although due to the control information the screen image consists of a bunch of jumbled colors. However, since DCTV is hooked up, it senses that the file is being displayed, is activated by the control information, and displays perfectly on the video output monitor, in full NTSC color and resolution!

The ability to display a 24-bit file in millions of colors in DeluxePaint III is a huge step in Amiga animation. It is no longer

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necessary to use expensive single-frame controllers to dump each frame to videotape; you simply save all 24-bit frames to hard disk, load them into DCTV, save them in DCTV format, and compile them using your favorite Amiga programs!

The program even comes with a sample animation created with the scene generator program "Vista", which is a pan around a realistic million-color mountainside. The current version of DCTV does not support animation (the program "DCTV Animation" is in the wings), but this mountain animation is easily loaded into DeluxePaint III or any ANIM-compatible program for viewing.

A few caveats: since this is hi-res animation, a fast processor is just about essential. Flipping a large amount of complex hi-res frames is not going to clock in at 30 frames per second on a stock Amiga. It is possible to adjust the DCTV images and create 3-bitplane frames instead of 4-bitplane ones. This has the animation program flipping 8-color pics instead of 16-color pics, thus saving lots of memory. You'll still have millions of colors either way on your output, and the loss of resolution will hardly be noticeable due to the amount of colors. A hard disk for storing frames is needed for any serious animation creation as well. Also, you cannot alter a DCTV frame in DeluxePaint; you can only display



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it. Drawing on the frame usually produces weird colors and almost certainly will corrupt the essential control information. The animation programs are only for arranging, displaying, and playing animations.

### COMPARISONS AND CONCLUSIONS

DCTV is a strong entrant in the arena of 24-bit paint programs. Compared with, for example, the Video Toaster's ToasterPaint, DCTV's paint program has professional features and was written from the ground up for this unit, while ToasterPaint is just a converted version of Digi-Paint III. DCTV is real-time paint on a hi-res screen. ToasterPaint is not real-time, and it features annoying scrolling on a lo-res screen. DCTV's color control is top-notch and its features, like Watercolor mixing, Gradient, and Stencil options, leave ToasterPaint toasted. ToasterPaint does have a cleaner signal though. Signal quality for DCTV is good to very good with ToasterPaint coming in very good to excellent. DCTV and ToasterPaint both support Commodore's IFF 24-bit standard so DCTV files can be displayed with the Video Toaster or vice versa.

One thing I did notice in DCTV was the color fringing. Most of the time when I examined solid lines with the magnifying option, there was a sort of fringing going on. I say "sort of" because

it's nowhere near the type of HAM fringing we're accustomed to; rather it is smooth and actually appears to be anti-aliasing the colors. Luckily it's not noticeable on the regular video output, and it seems to work in the video's favor. Had I not done any 8x magnification work, I would have never noticed it, but it is there and it's not mentioned in the manual.

I'd like to see S-VHS compatibility, although the RGB Converter should allow use with S-VHS genlocks. Also, video editors be warned: DCTV does not automatically output an interlaced signal. If you turn off interlace in the program (640 x 200), you will not get it on your video output. The whole interface of the program is very intuitive and easy to get around in. Painting in real time with this resolution and color is video heaven. It's a little sluggish on a stock Amiga, but it is a hi-res paint program with a slew of features manipulating 24-bit color information.

Between the text in the manual and the printout addendum, the enthusiasm is very catching. Digital Creations has plans to support this product in a big way with updates (the next update has over 100 new features slated) as well as additional programs like DCTV Animation, DCTV Paint (a high-end version), and DCTV RGB Paint (a high-end system for desktop publishers). Some of these new programs will require 3-5 meg of memory.

But rather than speculate on the future, I'll comment on what's here and now. DCTV is here and I'm impressed. It's a solid performer with beautiful output. The ability to animate in millions of colors for under \$1000 is a tremendous advantage to Amiga video users. Most important is that the 24-bit file with advanced color information is finally becoming the accepted standard. With stiff competition in the wings, it's exactly what the Amiga needs to remain the video leader, and DCTV is making it happen. •AC•

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# bug bytes

**This month,  
helpful reports on  
The Art Department,  
AmigaVision, Imagine  
and six other products.**

---

**by John Steiner**

A LETTER I RECEIVED a short time ago via CompuServe Email reports of a bug fix to one of the separately available loader modules for The Art Department, from ASDG.

The bug originally appeared in early versions of The Art Department Targa Module, and caused some Targa files to appear very dark when imported. This was not a problem with The Art Department but with the Targa loader disk itself. The problem has been fixed, and the fix is available at no charge. You can get the bug fix by returning your old Targa loader disk. Both The Art Department and The Art Department Professional are image processing utilities for the Amiga. ASDG, Inc., 925 Stewart St., Madison, WI 53713, (608) 273-6585. Inquiry #203.

CHECKING OTHER electronic mail this month, I received a letter from Howard Audet reporting a curious bug in AmigaVision version 1.53G. He writes that "... it appears that left and right [channels] are backwards when using sounds." He verified that his speakers were wired correctly by using Perfect

Sound v2.3 and R.L. Stockton's Sound program. I noticed the same problem with my AmigaVision. The easiest and most obvious workaround is to reverse the left and right speaker connections at the rear of the computer. Of course, this will cause all other applications that use Amiga sound and music files to have reversed left and right outputs.

GEORGE BAILEY of Deleon Springs, FL, writes to report a workaround for a problem he found involving Imagine, Impulse, Inc.'s new ray tracing and 3-D animation program. He writes that a new object file format used by the program causes crashes when used with InterChange, the 3-D object converter program by Syndesis.

Mr. Bailey writes that Imagine employs two new object editors. One is the Detail editor that imports standard Turbo Silver Object files. The second one is the Forms editor which can only load its own object files. Objects created in Forms remain compatible with the Detail editor for further manipulation. The problem comes when you go to



convert an object created in Forms with InterChange to another file format (Sculpt-3D, for example). This causes a system crash. Apparently, Imagine is using a new type of file format for the Forms objects that the InterChange Turbo Silver module is not aware of.

The workaround is to load the object created in Forms into the Detail editor and add a new axis to it using the "Join" command. This acts to permanently combine a new axis to the object, and also makes the object file more compatible with the Turbo Silver 3.0 format. The object can then be converted back and forth between differing file formats by InterChange with no additional problems. *Impulse, Inc., 6870 Shingle Creek Parkway #112, Minneapolis, MN 55430, (612) 566-0221. Inquiry #204.*

A MR. S. C. SKIRVIN of Scottsdale, AZ, writes about a problem with "The Art of GO" from A-Squared Distributions. He has both written and called the company, and has not received a response. He reports that the built-in file requester puts superfluous slashes in the path names that it generates, with the result being that file load failures occur. Once you edit out the slashes, a file can apparently then be loaded, but a requester with the following text appears: "Ignoring rest of line starting with , to long OK". Clicking on "OK" causes an endless loop which continues to present the same requester. Please write if you have a workaround for this problem.

I WAS CONTACTED BY a Dennis Lee Bieber of Sunnyvale, CA, who wanted to comment on the report of problems with TuneUp, a program

provided with Disk Mechanic. He reports that he has had no difficulty with TuneUp.

He has an A2000HD with three megabytes of RAM and two floppy drives. When running TuneUp on floppies, he writes "I normally raise the CACHE from the default 256K to 896K, enable VERIFY, specify the correct floppy drive, and execute (leaving the other options defaulted). The 896K CACHE allows TuneUp to perform all block movements in memory; the optimized disk contents are then written as track-images (similar to the WorkBench DiskCopy). When tuning the 40MB hard-disk, I follow the same procedure but set the CACHE to 2048K."

DCTV from Digital Creations is a video display and digitizing system that uses Chip memory for its frame

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buffer. It captures images in 24-bit NTSC color. Recently it was discovered that DCTV doesn't work properly with the Amiga 2002 monitor, though it works fine with the 1080, 1084, and 1084S.

According to a posting found on PeopleLink's Amiga Zone Professional, Digital Creations has a solution that will allow DCTV to work with a Model 2002 monitor. The problem results from improper termination inside the 2002 monitor itself, according to engineers at Progressive Image Technology, the hardware firm that makes DCTV. The repair is a hardware modification that can be made to either the monitor or the Amiga. Alternatively, an adapter cable can be made that repairs the incorrect termination. The fix is relatively inexpensive, and is required if you wish to use DCTV with a 2002 monitor. *Digital Creations, 2865 Sunrise Blvd. suite 103, Rancho Cordova, CA 95742, (916) 344-4825. Inquiry #207.*

AN UPGRADE TO Electronic Arts' DeluxePaint III that repairs problems with DPaint when running under Workbench 2.0 is now available. Version 3.25 offers a choice of three screen sizes for overscan: OFF, STD, and MAX. The file requester has been modified, also. Registered owners who want to upgrade to Workbench 2.0 can contact the company for details. *Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (415) 571-4525. Inquiry #217.*

ONE RELATIVELY INEXPENSIVE hard disk that is finding its way into Amiga computer systems is the ST1096N, a 3.5-inch 80+ MB SCSI drive that can be found for well under \$500.00.

The drive appears to have a problem with the A3000, however, in that it takes a relatively long time

to spin up. It takes so long, in fact, that the operating system fails to recognize its presence, requiring a warm reboot immediately after power up.

A public domain program is now available that changes a parameter stored in battery-backed RAM which causes the A3000 to wait longer before assuming there is no SCSI drive connected to each SCSI port. The program, called BATMEM, can be found on PeopleLink's Amiga Zone Pro. The program works only under Workbench 2.0, and though it delays system startup, a warm reboot is no longer necessary when using the ST1096N.

If you need to run under Workbench 1.3 on the A3000 and you go through the usual procedure of holding both mouse buttons down while powering up, wait until all hard disk activity stops before selecting Workbench 1.3 from the menu. This will assure that enough spinup time has been allowed, and when Workbench 1.3 initializes, it will sense the presence of the ST1096N without difficulty.

GOLD DISK HAS announced that the 12-20-90 release version of Professional Page 2.0 had a major bug that caused the program to

crash on Amiga systems with the 68000 CPU. This version was the first to be shipped to dealers and end-users.

Computers effected by the problem will crash when you try to start up Professional Page 2.0, and the system date is set for 1991. Accelerated machines (those that use a 68020 or 68030 CPU) are apparently unaffected. According to the notice, a free bug fix is being provided to all registered purchasers automatically. If you haven't registered your software, you should do so. Gold Disk will provide upgrades and upgrade notices only to registered users.

The report goes on to provide a simple workaround: "... you can get around this problem by setting the system date to sometime in 1990." *Gold Disk, 5155 Spectrum Way, Unit 5, Mississauga, Ontario, Canada L4W 5A1, (416) 602-4000. Inquiry #206.*

*If you have any workarounds or bugs to report, or if you know of any upgrades to commercial software, you may write to John Steiner, c/o Amazing Computing, P.O. Box 869, Fall River, MA 02722 ... or leave EMail to Publisher on People Link or 73075,1735 on CompuServe.*

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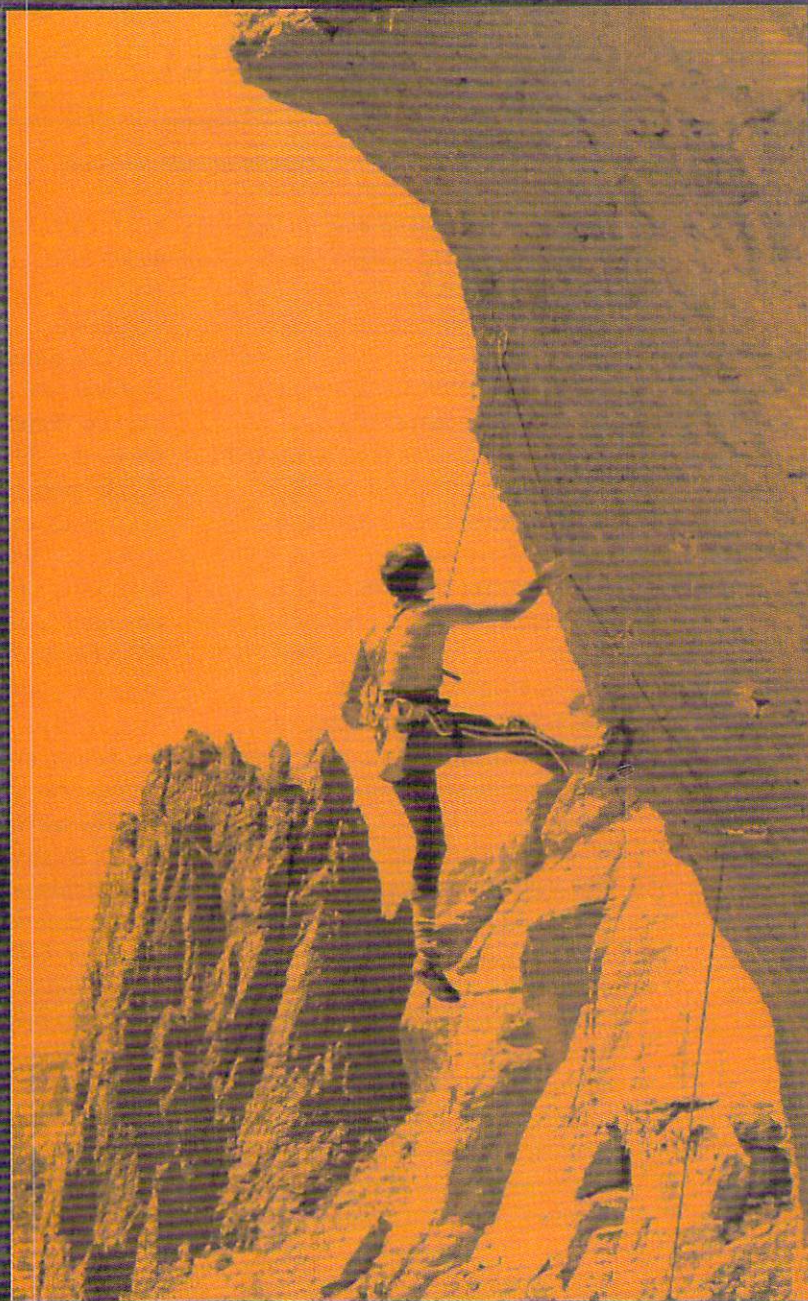
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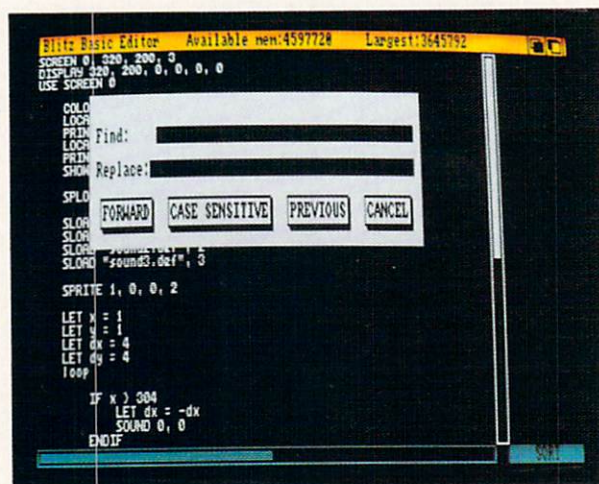


# BLITZ BASIC

by Paul Castonguay

This recently introduced integrated BASIC environment (editor/compiler/debugger combination) from Memory and Storage Technology (M.A.S.T.) boasts fast animation and good sound capability. There are several reasons for Blitz Basic's great speed. First, it takes complete control of your machine. When "BB" executes a program, it places all other programs on temporary standby. Second, BB is a subset of the BASIC language, providing limited but faster capabilities. Third, it uses four-decimal, fixed floating-point math for all its calculations. Finally, BB is a compiler, although certainly not the only one available for the Amiga.

Search and Replace functions are fully supported in BB's Editor.



I commend M.A.S.T. for honestly describing their product as a programming environment intended specifically for "people eager to take advantage of the Amiga's unique capabilities", rather than as a full-fledged programming language for designing applications software. It is, of course, great for games. It provides very good control over the Amiga's animation capabilities without the complexities of the Amiga's graphical user interface (GUI) in C or Modula-2.

## INTEGRATED ENVIRONMENT

An integrated environment is a compiler that works in conjunction with an editor and debugger, allowing you to compile, link, and execute your programs with a simple command invoked from within the editor. If you make a mistake—perhaps a programming syntax error—the debugger responds by identifying the problem and then returning you to the proper line within the editor for correction. The only noticeable difference between BB and a traditional interpreter like AmigaBASIC is the slight delay between the moment you tell the editor to run your program and the time at which execution actually begins. It is then that compiling and linking take place. The longer and more complex your program, the longer the delay. Of course, BB can also be used to produce self-standing compiled programs which run on their own, without the editor and without any delay in execution.

## EDITOR

BB's editor is good! It has all the hoped-for features, selectable from either pull-down menus or corresponding "hot keys". Most functions also work the way you would expect them to; for example, [Right-AMIGA]-S saves a file. But a few are implemented in unexpected ways. [Right-AMIGA]-L, rather than the usual [Right-AMIGA]-O (Open file), loads a file from disk. [Right-AMIGA]-O is reserved for selecting compiler options in BB. Also, there is no "hot key" for "Compile &



Run". [Right-AMIGA]-R, which you would expect to use to activate that function, is tied to "Replace" in the "Search" menu. The Editor uses a nice dialogue box for loading and saving files. Also, as you enter the lines of code in your program, all key words are converted from lowercase to uppercase, just like in AmigaBASIC. I find that feature to be extremely helpful because it reduces typing errors, and prevents the accidental use of key words as variable names.

The first thing you will notice in this editor is the tiny size of the font. By default it is only 6 pixels high, allowing you to see more of your document on a single screen. If you find that too hard to read, you can switch easily to an 8-pixel font by selecting the "Productivity" item in the "Misc" menu.

The operations of Cut and Paste are slightly different from those in AmigaBASIC. To move a block of code here, position the cursor at the first line of your block and select Mark. Then move the cursor to the last line of your block and select Mark again. This both highlights the block and copies it to the clipboard (edit buffer). Now position the cursor where you want the block to appear and select Copy, and the block is Pasted into the document at the new location. Copy is not used to copy blocks of text into the clipboard from a document, as you might expect, but to place blocks already copied to the clipboard back into a document. So, BB's Copy is really a Paste, and it represents a different approach to document editing that has some merit, once you get used to it. Finally, select Kill to remove the block from its original position. To "unmark" a selected block without deleting it, select Forget. Another nice feature is BB's ability to save and read blocks to and from disk. Blitz Basic fully supports Search and Replace functions used to find and replace strings in your document. Though these final two features are missing from AmigaBASIC, they are not unique to BB, either. They are standard features in several other versions of BASIC for the Amiga as well.

The Compiler menu handles the way your program is executed. I again commend BB for defaulting to conservative compiler settings, like having error checking turned on and allowing [Ctrl]-C to interrupt program execution. You can compile with those options turned off, once you are certain your program has no bugs. There is also a selection for a code optimizer, something which produces more efficient, executable code at the expense of slightly longer compile time.

## *Blitz Basic is an excellent product for designing pixel-dependent playfield animation programs (games).*

The last menu—Misc—has some neat features, like one which lets you close and reopen the Workbench (great if you don't have much memory). But what do you do if you want to execute an AmigaDOS command? No problem! Just select "GROOVI CLI" and AmigaDOS commands become executable directly from the editor. I have noticed, however, that while in GROOVI CLI my current directory is frozen to SYS:, the root directory of the Workbench disk. The AmigaDOS CD (Change Directory) command has no effect. To copy and move files, you must use their complete path names. A minor inconvenience, considering the system memory saved by running the Blitz Basic editor with the Workbench closed. As far as I know, the CD command is the only AmigaDOS command which does not work normally from the GROOVI CLI. Finally, the MISC menu has support for PAL or NTSC displays.

When you are in BB's editor, BB runs under the normal Amiga operating system. That being the case, I was able to write this article in WordPerfect while at the same time using BB's editor. Once you ask BB to run a program, however, it takes over the machine. Thus, while BB was executing a pro-

gram, I was not able to switch back to WordPerfect. However, once the program stopped executing, I was again able to see the editor and switch back and forth between it and WordPerfect, and my document in WordPerfect was faithfully restored.

### **PROGRAMMING THE DISPLAY**

This is perhaps the most attractive part of Blitz Basic. The BB display is handled differently from AmigaBASIC's because when BB executes a

program, it bypasses the normal exec and intuition system routines. The default display is a 640x200 pixel, 8-color display. To get others, you use the SCREEN, DISPLAY, USE, and SHOW statements. In BB, SCREEN defines an area of Chip memory called a bitmap. USE causes your graphic images and text to be stored in the bitmap. DISPLAY controls the resolution and display mode. Finally, SHOW causes what is in the bitmap to appear on your monitor. The beauty of this is that the bitmap can be any size—much larger, in fact, than the size of your monitor. Here is a simple example:

```
SCREEN 1,1280,600,1
DISPLAY 320,200,0,0,1,1
USE SCREEN 1

LOCATE 0,5

FOR i=1 TO 60

  PRINT " ";

  FOR j=1 TO 3
    PRINT "This is a big image. ";
  NEXT

  PRINT

NEXT

FOR y = 0 TO 399
  VWAIT
  SHOW 1,y,y
NEXT

END
```



The above program defines a bitmap of 1280 x 600 pixels, prints something to it, displays it, and then finally, scrolls it. Designing scrolling displays for arcade style games is a snap in BB. Scrolling is very smooth thanks to BB's VWAIT statement, which delays program execution until the current display has been completely created. Other traditionally complex display modes are also available and are equally easy to set up. Dual Playfield and Hold And Modify (HAM) are available simply by specifying a 1 or 2 in the mode argument of the DISPLAY statement. Extra Halfbrite (EHB) is available by specifying a 6 for depth in the SCREEN statement.

Notice that the above example uses low resolution. Unlike AmigaBASIC, it does not require any closing of screen memory before exiting. In BB, screen memory gets properly returned to the system whenever your program stops executing. No extra programming effort is required on your part. It does the

same thing with graphic objects like sprites as well. No more do you have to reboot just to get rid of a sprite that got left on the system just because your BASIC program terminated prematurely, without formally closing it.

### ANIMATION SUPPORT

Sprite and playfield images are brought into your program by reading them from disk in IFF format. The idea is that you design them using all the interactive facilities of DeluxePaint, as opposed to specifying them within your program. The advantage here is that creating complex graphics is easy to do. The sprite demo "spritmove.src" on BB's Disk1 is a good demonstration of how a single image can be used to define 8 sprites. The following, more simple example (which I wrote) shows how easy it is to animate a single sprite. Motion is both fast and smooth. The SOUND statements will be discussed below.

```
SCREEN 0, 320, 200, 3
DISPLAY 320, 200, 0, 0, 0, 0
USE SCREEN 0

COLOR 5
LOCATE 4,10
PRINT "This is my first SPRITE
program."
LOCATE 9,24
PRINT "Press [CTRL]-C to QUIT";
SHOW 0, 0, 0

SPLOAD "mysprite", 1, 20
SLOAD "sound0.def", 0
SLOAD "sound1.def", 1
SLOAD "sound2.def", 2
SLOAD "sound3.def", 3
SPRITE 1, 0, 0, 2

LET x = 1
LET y = 1
LET dx = 4
LET dy = 4

loop

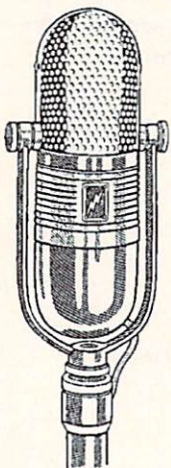
IF x > 304
LET dx = -dx
SOUND 0, 0
ENDIF

IF x < 1
LET dx = -dx
SOUND 1, 1
ENDIF
```

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```

IF y > 190
LET dy = -dy
SOUND 2, 2
ENDIF

IF y < 1
LET dy = -dy
SOUND 3, 3
ENDIF

LET x = x + dx
LET y = y + dy

VWAIT
SPRITE 1, x, y, 2

GOTO loop

END

```

The file "sprite" is provided for you by BB at the root directory of Disk1. Or if you like, you can create one of your own in DeluxePaint. BB also supports the animation of more than 8 sprites using a concept called SLICES. Check out their slices.src on Disk1.

Note that BB has no equivalent to AmigaBASIC's COLLISION interrupt feature for sprites. You cannot, for instance, give a sprite a velocity and wait

for it to have a collision with a screen edge. As a result, the above program must loop constantly to animate the sprite.

Since sprites have a size restriction on the Amiga, BB allows another type of graphic object called a blit. A good demonstration of BB's ability to animate large graphic objects is the program vballz.run provided on Disk2. It's very impressive. Another fancy but easy-to-use feature is BB's VERTICAL BLANK interrupt, which allows you to process subroutines during the time period between successive frames on your monitor. The result is smooth animation. And just in case a vertical blank time period is too little to perform whatever processing your animation loop requires, BB also supports double buffering, the ability to alternate between two display screens and switch from one to the other during the vertical blank time period. The WAIT statement is useful for measuring the execution time of any section of your pro-

gram to see whether it exceeds the time used by the computer to draw a complete frame. BB also has support for animating blits through a concept called QUEUES.

## SOUND SUPPORT

BB can load sounds in IFF format. Just as you produced sprites and blits in DeluxePaint, you can produce sound effects in Audio Master or Perfect Sound. The results are very realistic sounds without any program complexity. In my above sprite example, I loaded four sound definition files from BB's defender game (I copied them from the defender directory to my current working directory) and used them in my own program. They are played whenever the sprite collides with the screen edges. The SLOAD statements read the sound files from disk while the SOUND statements play them. BB also comes with a somewhat primitive music editor called MAESTRO.

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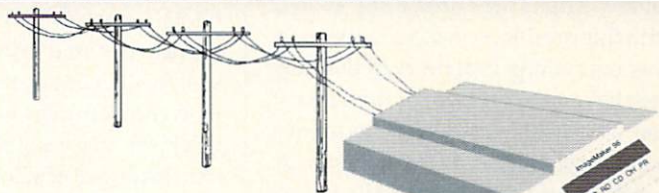
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## LANGUAGE STYLE

Although BB is a traditional subset of BASIC, you can expect some slight syntactic differences as well. For instance, there is no INPUT statement. BB uses a function called EDIT\$( ) for the same purpose. Block IF constructs do not use the key word THEN, and FOR-NEXT loops do not accept a variable specification after the NEXT statement.

```
FOR i = 1 to 100
  PRINT i
NEXT
```

If you try writing "NEXT i", the compiler will not accept it. BB also makes use of a number of statements unique to its animation and sound support, like QUEUE, BLIT, SLICE, VBLANK, XFLIP, SLOAD, SPLOAD, MOUSEWAIT, VWAIT, etc. Finally, there are the MCLOAD and MCJSR( ) statements, which allow you to load and execute your own machine code subroutines from within your program.

## EXAMPLE PROGRAMS

I really applaud M.A.S.T. for the included demonstration and example programs. The defender game is quite good, and they give you every bit of source code. There aren't any secrets with this product—you can see exactly how everything is done. And their Extras disk has even more of the same. If you are itching to design your own arcade-style games, these will provide excellent guidance. And just in case all that stuff is too complex to begin with, there are several simple examples that show you exactly how to set up features such as dual playfields, queues, double buffering, or smooth scrolling. Each one represents a simple building block which can be incorporated within your own programs.

## DOCUMENTATION

The docs here are generally too brief for a product intended for the Amiga. Most Amiga users are hobbyists and many purchase a product like this for the express purpose of learning more about computers, or even for learning how to program. Some parts of the manual meet that goal well. I like

the description of the difference between compilers and interpreters. The overview of the BASIC programming language is also very good. However, I do not particularly like the section which describes display modes and resolutions. One of the most important properties of any programming environment is how it interacts with the computer's display, and BB has some exceptionally attractive properties in that regard. Unfortunately, they are described much too briefly and incompletely in the manual. I had to hack around quite a bit before realizing exactly how the different statements work together.

## WHAT'S THE BAD NEWS?

BB is not a general purpose programming environment. It lacks many of the features which my experience dictates all programming languages ought to have in order to solve complex problems.

Take BB's fixed-point math, for instance. It greatly improves speed, but restricts the language's ability in many situations, such as in the generation of fractal images. BB would not do well there. True, you could design a few fractal demonstrations in BB at specific coordinates and magnifications and, yes, they would execute more quickly than the examples in my series of articles for this publication, written in either AmigaBASIC or True BASIC. But you could not perform any serious mathematical experimentation in BB. Missing are features like math overflow protection, local variables, recursion, and screen scaling. Worse, there is no provision for user-defined functions that allow you to design your own screen scaling functions. What that means is that graphic images based on mathematical equations are difficult to draw. All PLOT and LINE statements must use pixel numbers directly.

BB's standard input/output (I/O) statements are the most limited that I have seen in any version of BASIC. Disk I/O does not support random access files. It will not even conveniently APPEND to a file. In addition, the

documentation warns you that while BB programs are executing, you should not have any other applications on the system which are performing file I/O. Finally, since BB bypasses the operating system, there is no support for Amiga-style windows, screens, and pull-down menus.

BB gave me one operational problem. It occasionally crashed the computer from within the editor—once when I tried to delete a line, another time when I tried to switch the size of the font. In each case I rebooted and immediately tried to recreate the crash. In each case I could not. I advise you to save your source code often.

## WHAT'S THE GOOD NEWS?

Blitz Basic is an excellent product for designing pixel-dependent playfield animation programs (games). In importing IFF images, it frees you from having to resort to complex analytic geometry and mathematics within your program. In playing realistic sounds, it adds a high level of professionalism to your programs (I am presently designing my own version of Pong! in BB, complete with humorous sounds).

## THE FINAL ANALYSIS

Many interesting phenomena in computer science rely heavily on program structure for their implementation. Recursion is an example of that. The ability to produce graphic images from mathematical equations is another. Since it's *not* a general purpose programming language, BB lacks these characteristics. I do recommend BB for pleasure, but not to the exclusion of other versions of BASIC (or even other languages) from which you can gain a much higher level of expertise in working with computers.

•AC•

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# PROWRITE

by

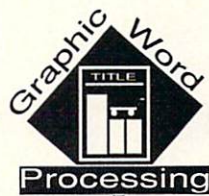
Kim Schaffer

IF YOU'RE LOOKING for a full-featured word processor with graphics capabilities that gives you a good feel for what your printout is going to look like, perhaps you should look at ProWrite by New Horizons. ProWrite has enough word-processing features to make anyone stand up and take notice. It's a powerful tool that can coexist practically with your other programs.

All programs dither the output to produce shades of gray for a monochrome printer and intermediate colors for a color printer. ProWrite is unique in that it actually processes the graphics input file, displaying onscreen a dithered picture of what you should expect to see come off your printer — black and white or color, depending on what you initially select.

Right from the start, ProWrite uses the printer parameters to define the page. The page-setup menu displays which printer you have selected in "preferences", and lets you change the paper size, orientation, and dot density. The page-setup menu also allows you do an overall size reduction if you need a little extra room for graphics and such.

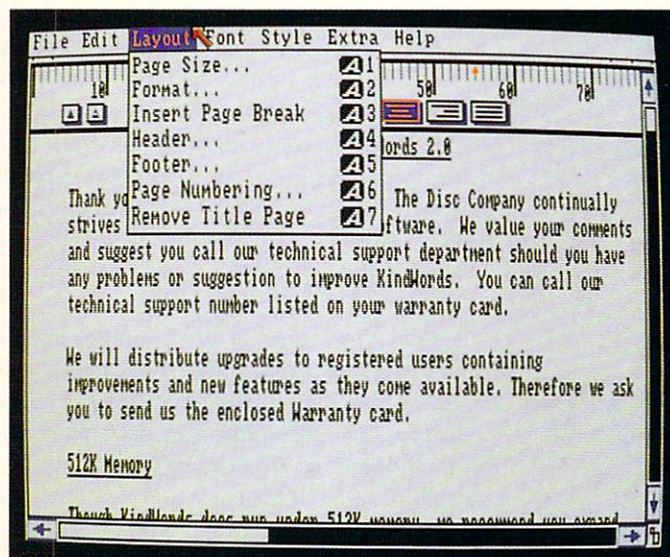
In addition, the aspect adjustment can be turned on or off, depending on whether you want a corrected aspect ratio (truer circles) or exactly what is on screen. You can even adjust the screen colors to match that of your output



# KINDWORDS

by

Chuck Raudonis

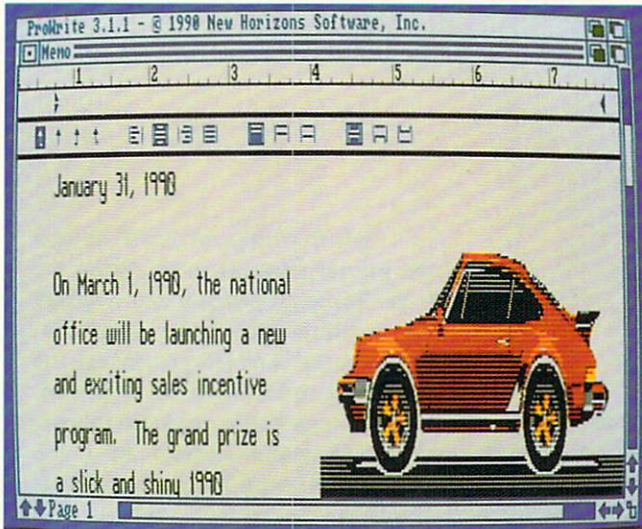


KindWords' options are accessed easily through pull-down menus.

THE DISC COMPANY'S entrant into the graphic word-processing category, KindWords, is a good entry-level WYSIWYG (What You See Is What You Get) word processor. Like other graphics-based word processors, KindWords provides the user with the tools needed to integrate graphical elements with text in an easy-to-use package.

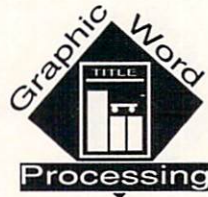
Entering, editing and formatting text in KindWords is a very intuitive operation. Selecting text to be edited or formatted is accomplished by the now familiar "click and drag" highlighting





from the "options" window. New Horizons has made it possible for you to maintain the "link" of screen and printer by setting the colors of the screen to that of your printout.

**ProWrite combines powerful word-processing features with unique graphics capabilities.**



method (the cursor is placed over the first character to be manipulated, and the left button is held down while the pointer is "dragged" over the desired text). This operation highlights the text and prepares it for the desired operation. The program also features a "Select All" menu option to provide an easy method of selecting all the text in a document for purposes of manipulation. This is handy if the user decides to change the pitch or font style of the entire document.

Margins and tabs are set very easily. Across the top of the document window is the ruler. On the ruler, two orange triangles represent the right and left margin settings for the current paragraph. A small blue triangle represents the left margin setting for the first line of the current paragraph. The fact that the margins can be set by the indi-

ProWrite imports IFF and HAM graphics. After being imported, graphics can be resized and/or moved. Color text can be used to enhance graphics with transparent backgrounds by using the text either as labels or as titles. Also, by modifying the margins, text can be made to follow the graphic's outline rather than the square border of the graphic insert.

However, a graphic word processor isn't just graphics; it still has to deliver the text. ProWrite's editing functions are well thought out, integrating the keyboard and mouse so you can generate output with minimum fuss. Screen speed is acceptable, even in high resolution; though it lags sometimes with text reflow and spell checking, it quickly catches up. You can cut, copy, paste, or modify the style or format of sections of text using either the mouse or the keyboard.

Text can be modified in ProWrite through changes in font or size, or by the implementation of bold, underline, italic, shadow, superscript, or subscript. Text can also be in one of seven colors. All these text modifications can be copied from one place to another and are referred to as a "style". Multiple styles are not defined within ProWrite so they cannot be easily retrieved. Styles can vary throughout the document, but only one style at a time can be selected and overlaid on new or existing text.

vidual paragraph is very important. This allows the user to set up both the right and left margins and the first line indent/outdent as a default for the whole document, but then individual paragraphs can be formatted as needed by setting custom margins and indents.

For example, if a direct quote is to be included in a document, the right and left margins can be set five spaces in from the default margins. This will produce an island of text that is visually isolated from the rest of the document to draw attention to the quote. If a "bulleted" list is to be included in a document, the right and left margins can be set to 10 spaces in from the default, and the first line of the paragraph can be set for a two- to three-space outdent, and the result will be a "hanging indent" that will organize the text into an ordered list.

Tab stops are easily set using the two gadgets on the ruler that represent left and decimal tabs. The document can be set up with default tabs set at every "n" spaces. To place a custom tab, the desired tab format is picked up by clicking on the gadget and placing the tab stop on the ruler in the desired position. If the tab is not placed in the correct position, just grab it with the mouse and drag it to the desired



Font support is excellent in ProWrite. For selecting fonts, ProWrite presents you with a window containing a scrolling list of fonts. As each font is selected, the available sizes are displayed, along with sample text corresponding to the font and the size selected. If you plan on switching between fonts often, you might consider adding the font to the hidden menu. This is easily done by clicking on the gadget in the font select window.

New Horizons also included a set of fonts for pica and elite, in normal and wide, to help in using the printer fonts for quicker printing. These work well for my printer but have aggravated my font problem. Access to all my fonts is not possible. Since I use many fonts, I have divided them into several directories. Unfortunately, ProWrite opens only the directory assigned to fonts. One possible way around this is to assign fonts to the directory you wish to use prior to starting ProWrite.

ProWrite supports text alignment with four types of tabs: left, center, right, and decimal. The first three are self-explanatory. The decimal tab is usually used to align numbers so that the decimal point is the same for a column of numbers. New Horizons added a twist to the decimal tab, however, by letting you specify the character to center the text. Tabs are easily placed, moved, or removed using the mouse to select the type of tab you want to use, then clicking on the ruler where you want the tab, and dragging the tab along the ruler to change the location, or dragging the tab off the ruler to remove it.

Margins, indents, justification, line spacing, and paragraph spacing can also all be selected from the ruler. This is referred to as the "format". The format of the paragraph is maintained until you change it, at which point the format changes the whole paragraph you are currently in, including any previously selected paragraphs, and any new paragraphs that are started from the selected paragraph. Formats, like styles, can be copied in ProWrite.

Columns are also supported in ProWrite. Up to five columns can be defined on a page in two different styles. The first is similar to a newspaper: the type goes down one column to the end and then starts a new column. The second style is more like a table: the column goes down until the column break is inserted, then it goes to the next column.

H A M E

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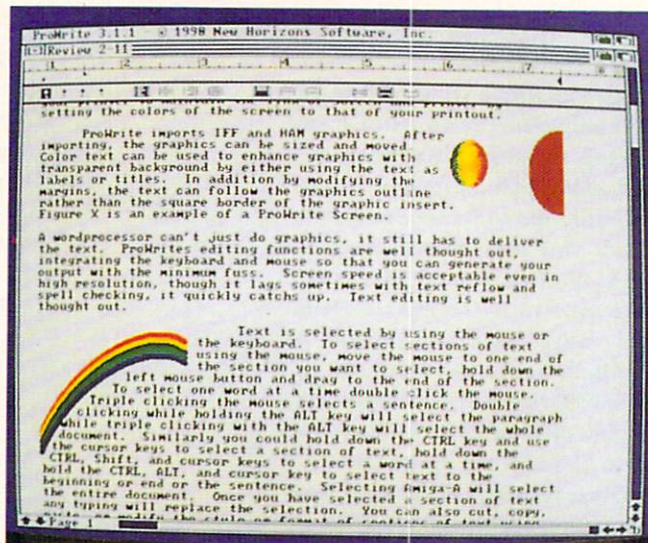


This style, however, keeps the rows of columns together, and allows for more than one row in each column. The only drawback to the use of columns in ProWrite is that they must be used exclusively throughout the document.

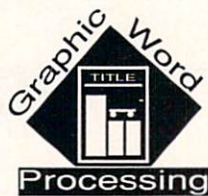
Time, Date, Page Number, and Page Count are options available to you through the Insert submenu. Time and Date can either be inserted as functions, being updated as needed, or as fixed numbers. Page Number inserts the number of the page you are typing. These functions are usually inserted into the header or footer of a document. The formats for the time, date, and page number can be chosen from a fixed list, and the number for the first page can be set.

Page Count is one of those features that is almost impossible to find in word processors. Suppose you want to have not just the page number, but also the total number of pages in the document

With ProWrite, text can be made to follow the graphic's outline.



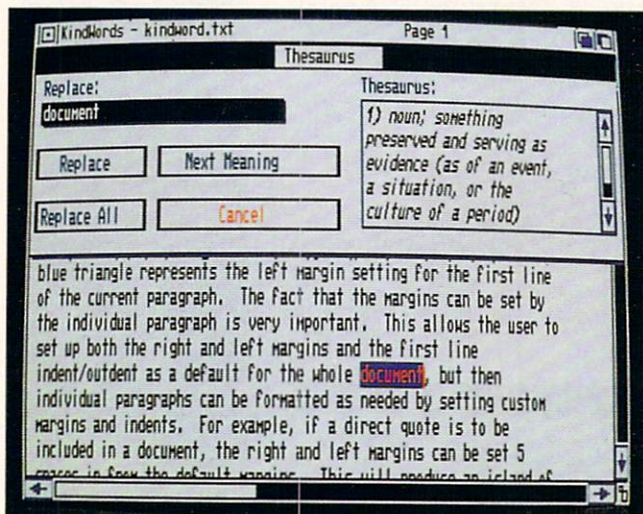
on each page (i.e., 1 of 6 pages). Page Count totals the number of pages in the document and inserts the number using the same format as the Page Number. Page Count also adjusts the number if the first page is not set to 1. Also under the Insert menu is an item called "Literal", which displays a table of all



location. The inclusion of center and right tabs would have allowed for even easier formatting.

The ruler also has gadgets to set the line spacing and paragraph text

KindWords' thesaurus contains over 470,000 synonym listings.



alignment. Text can be set as single- or double spaced by selecting the text to be affected, and clicking on the appropriate gadget. Paragraphs can also be set to ragged right, centered, ragged left, or full justification. Ragged right places all of the text aligned with the left margin with the right end of the lines falling wherever the last character of the last full word ends up on the line. Ragged left aligns all of the text on the right margin with the left end of each line being adjusted to align the right. As would be expected, the center command organizes all text evenly between the preset margins — especially useful for headings and titles. Full justification adjusts inter-word spacing to align both the right and left margins evenly, providing a very professional look.

KindWords will load and save documents either in its own proprietary format or in standard ASCII files. One of the drawing features of a graphics-based word processor is the ability to combine graphical elements with the text in the document to provide a custom look. KindWords will allow the user to import an IFF file in either low (320 x 200) or medium (640 x 200) resolution. Either of the high-resolution interlaced formats can be loaded, but the program will convert the high-resolution image to the non-interlaced for-



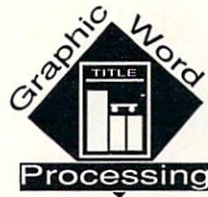
symbols that are part of the font set selected. You can insert the character you want with the mouse. However, the table is only accurate for the output if you print in the Normal printer format, or, if your printer has the same character set, you can use the NLQ or Draft printer format. ProWrite also supports PostScript printers using another New Horizons package, ProScript (although I wasn't able to try the PostScript options).

ProWrite also supports case changes of selected text, either all upper case, all lower case, or what New Horizons refers to as "mixed" case (the first letter of each word is capitalized).

Whether you want to have your spelling checked as you type or just before printing, you probably should look into the spelling checker. The spelling checker has a full complement of features including the continuous checking as you type, as well as sugges-

tions of correctly spelled words, multiple user dictionaries, and word lookup. Suggestions are made automatically for word lookup; however, the spelling is changed to the closest word ProWrite can find, leaving you to determine whether or not the word is spelled correctly. When spell-checking a document, you will be presented with words that are possibly misspelled without alternatives unless you have selected the Guess option. This could well be a relief for those without a hard drive. ProWrite includes an excellent thesaurus that displays synonyms in list form to choose from, and categorizes similar words by parts of speech. For example, the word "professional" can be used as a noun similar to adviser, guru, or specialist; or as an adjective, such as able, accomplished, or expert. Of course, these synonyms were chosen from a list provided by the ProWrite thesaurus.

If you write to different audiences and often have length requirements, ProWrite can provide you with the size of a document and its level of difficulty, or reading grade. The size of your document is given in characters, words, lines, sentences, paragraphs, pages, and pictures. The reading level grade is based on the length of the words and sentences, an acceptable gross measurement. All this information is provided in a single display, providing you with an excellent summary of your efforts.



mat by removing every other horizontal line of the image. This can obviously be disastrous to highly detailed images. If the image being imported has horizontal lines that are only one pixel wide, there is a 50% chance that a given horizontal line will be removed entirely. Once the image is brought into KindWords, it can be cropped, scaled and moved horizontally in the document. An important feature missing is the ability to flow text around a graphic that is narrower than the current margins.

Printing a document in KindWords can be accomplished with a number of options. The document can be printed in draft mode, final quality, or in a special format known as "SuperFonts". Draft and final quality modes utilize the abilities of the standard Amiga printer drivers. The draft mode uses

the fastest print mode the printer supports. The final quality mode uses the best quality font that is built into the printer. Depending on the capabilities of the printer, this mode can be slower than the draft mode, but the output quality can be much higher.

If speed of output production is not a concern, KindWords includes the "SuperFont" technology, which uses custom printer drivers supplied with KindWords. The combination of the custom drivers and KindWords allows the system to produce a high-quality font that is printable in several point sizes.

KindWords includes several fonts with the package. Two text font faces, Roman and Novell, are included. Novell is a sans-serif font, while Roman is a serif font. Both text fonts are provided in 8-, 12-, and 14-point variations. In addition to the two text fonts, KindWords provides superscript and subscript fonts, and Math, Greek, and Symbol font sets. While the quality of the SuperFonts is high, the fonts are not proportional. Though they look good, they lack the polish of a proportional font. Imported graphics are printed in full color, but text is limited to black.



One option you may not use very often is that of having the Amiga read to you. ProWrite supports either selected text or the whole document in this capacity. ProWrite is the only word-processing package I know of that not only supports the speak port, but allows you to use ProWrite as a phonetic editor as well. Often your eyes may jump over faulty text, so there's an advantage to the oral check (despite the obvious limitations of the speak function).

If you want macro capability for ProWrite, you must use ARexx. That means two things: you can't do macros as easily as pointing and clicking, and the program has the capability for very powerful macros. Up to ten macros can be called directly through the keyboard or the hidden menus. Many more can be called by using the menus to call the

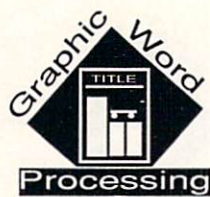
macro up by name. Two macros — transpose and math—are shipped with ProWrite. The first one transposes characters while the other performs math functions. The math macro is quite powerful as it supports all the ARexx math capabilities.

ProWrite will sort paragraphs in either ascending or descending order. Since the only thing that defines a paragraph is a hard carriage return, the Sort function is very flexible and can be used for many different things, like alphabetizing mailing lists or cataloging programs. The mailing lists are especially well-suited for ProWrite to use as inputs to a report blank.

Print merge is supported and is easy to use. Two files are required for print merge — the data file and the merge file. The former is an ASCII file containing several records, each made

up of several fields. Records are separated by carriage returns; fields are separated by tabs or commas. Quotes can be used for fields that contain tabs or commas. The first record of the data file consists of the name for each field. The merge file contains the name of a field surrounded by « and » for each place where ProWrite is to substitute the contents of the field into the print file.

Most ProWrite functions have keyboard shortcuts. Unfortunately, a few often-used functions, such as looking up a word or applying a style, have no keyboard equivalents. ARexx macros can be used to overcome these limitations, and the ten macro assignments available should meet most requirements. However, the keyboard shortcuts that exist are well-documented in the manual, which is well laid out and



KindWords supports headers and footers nicely. Headers and footers are limited to 15 lines of text. The header and footer can contain fields that reflect the current page number, date, or time. This is helpful for denoting revision levels of a document.

KindWords has a comprehensive search-and-replace feature that allows for replacement with or without confirmation. This allows the user to process mass changes when needed but still exercise control when the situation demands it. Also included in the package is a lookup dictionary with over 100,000 entries and an electronic thesaurus with over 40,000 words and over 470,000 synonym listings. Users with over 1 meg of memory can load the entire dictionary and thesaurus. This will speed up access and allow for easier use of these features.

Another feature of the program is its ability to hyphenate documents "on the fly". Many other word processors require hyphenating as a separate step. KindWords will hyphenate the document as it is entered and updated. There is a slight performance degradation when this option is turned on, but it allows the user to view the document in its true form while it is being worked on.

The system also provides a mail merge function. KindWords uses the standard format for mail merge, data document, and merge letter. The data document contains all the data records that are to be merged into the shell document. The merge letter provides all of the constant text and indicates where the data from the data document should go. While this system does not interface directly with any of the Amiga

databases, with KindWords' ability to load ASCII files directly, a report could be produced out of the database, imported directly into KindWords, and used as a data document. Once this report was defined, the transfer would be very easy on an ongoing basis.

A final word regarding the product's performance: I tested KindWords on a stock Amiga 2000HD with 3 MB of memory. The system can keep up with your typing adequately, but I found selection of items via the mouse to be sluggish at times.

This package is a good entry-level word processor. While it may lack some of the sophisticated features of some of the more powerful word-processing packages, its "point-and-shoot" orientation makes it easy to use. And the good-looking results don't hurt either.

•AC•



## PRODUCT INFORMATION

### KINDWORDS

Price: \$99.95

Inquiry #226

The Disc Company

11022 Santa Monica Blvd. Ste. 440

Los Angeles, CA 90025

(213) 478-6767

### PROWRITE

Price: \$175.00

Inquiry #202

New Horizons Software

206 Wild Basin Road Ste. 109

Austin, TX 78746

(512) 328-6650

contains several helpful charts. The keyboard shortcuts, for example, are listed by function and by key, with the definition for each function.

As with any graphics utility, memory considerations are always important. New Horizons lets you customize ProWrite to your needs and limitations. If you have minimum

memory, ProWrite lets you save space by not displaying the graphics, just the outline and sizing tools. You can also set the resolution of the screen and even use the Workbench screen to minimize ProWrite's requirements. If you have extra memory, you can use it to display the graphics, show more of the document, and even speed up the

spell checker by putting the dictionary in RAM. This last option is especially helpful for those without a hard drive.

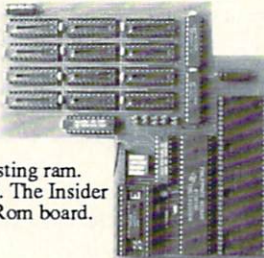
Perhaps inevitably, there were a few areas in which I felt the program was lacking. I wish New Horizons had incorporated into ProWrite the use of timed backups and backup files for those of us who get involved and forgetful. Also, the screen resolution cannot be changed while in ProWrite. Also, pictures cannot be cropped, although they can be expanded or contracted. You can, however, use a paint program to save the area as a brush. A final complaint is the lack of "bookmarks" which presents a problem in getting around quickly in a large document.

ProWrite certainly answers the mail for most jobs that require graphics and a full function word processor. It just may be the best marriage between the Amiga and printer yet. •AC•

## Insider II™ 1.5 Meg in the A1000

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Retail Price \$249.95 w/OK



## KwikStart™ V1.3 or V2.0

Allows A1000 owners to install V1.3 or V2.0 Kickstart in Rom. Frees up 256K of memory to use as Fast Ram under V1.3. Upgrade to the latest operating system and still be able to use Kickstart from disk if needed.

Retail Price \$99.95 w/o Roms



## MultiStart II™ A500 & A2000

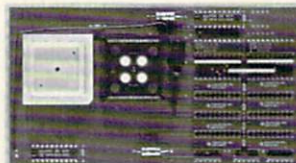
Allows A500 and A2000 owners to install Kickstart V2.0 and V1.3 Roms and switch between them with the keyboard. Can also install a third Rom. Lets you stay compatible with your software. No external wires or switches required.

Retail Price \$99.95 w/o Roms



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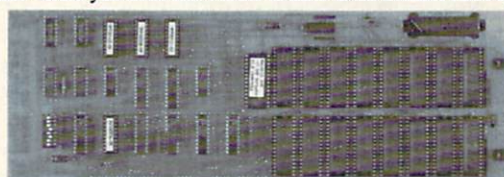


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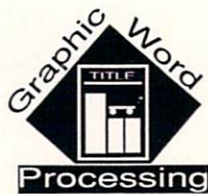
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# PEN PAL

by  
Bryan Catley

A COMBINATION PRODUCTIVITY PACKAGE, Pen Pal is not only a word processor with stunning graphics capabilities, but also a forms generator/manager as well as a powerful database manager with full mail-merge capabilities. These fully integrated features dovetail very nicely to result in an impressive overall package.

Pen Pal comes on two nearly full disks, neither of which is copy protected. The first is a bootable program disk with an included hard disk installation procedure. The second contains copies of the Workbench 1.3 printer drivers, help files, a sample font library, and spelling dictionaries.

## INSTALLATION

Pen Pal runs on any Amiga with at least one meg of RAM available. It's beneficial but not necessary to also have a hard disk, or at least two floppies. You can get by with a single floppy but you'll go mad with disk swapping!

The manual describes installation procedures for both hard disk and floppy-based systems. For a floppy-based system, it assumes the Pen Pal program disk will also be the Workbench disk, meaning your Amiga must be booted with that disk. The manual also describes how to install a printer driver.

If you have a hard disk, all files—program, help, dictionaries, pictures, fonts, and documents—are stored on it. If you have floppies, it is not quite that simple because both distribution disks are just about full with no room for documents. The manual does describe how to create extra space on a copy of the second disk, but I would take things a little further and use a totally different disk for documents. Copy the database and documents drawers onto a fresh disk and set the preferences accordingly.

When I needed the dictionaries for spelling checks, Pen Pal asked for the appropriate disk.

A third installation option for users with two or more floppy drives who prefer to use a single Workbench disk for all applications is to make two application disks (besides negating the need for constant rebooting, it is also a form of protection against some viruses). The first might contain the Pen Pal program and the Document, Help, Graphics, Database and Font drawers, plus "Wtr.INP", a special file which must be kept in the same directory as Pen Pal. The second can contain the spelling checker dictionaries, which could be called for automatically when needed. While not documented, this approach works very well. Note that are unable to place the program and the dictionaries on the same floppy disk—each requires over half a disk of storage.

## RUNNING PEN PAL

Pen Pal runs equally well from the Workbench or a CLI, though using the CLI is an option the documentation does not mention. If you do use the CLI, you must place quotation marks around the program name because of the imbedded blank; thus, run "Pen Pal". Alternately, you may choose to rename to PenPal.

The program loads quite quickly, and within seconds you are presented with the custom screen. You'll see a dark green background with a white title bar containing the release number and the

current time, and down the left side, a tool box (graphics gadgets).

A few seconds later, a new document window opens on the screen. Besides all the usual window gadgets, there are rulers across the top and down the left side, scroll bars on the right and lower sides, and four new gadgets above the vertical scroll bar. The vertical scroll bar (or "Page Elevator") also shows the current page number, a very useful option for moving around a large document.

As you begin typing, you'll immediately notice two things. First, the default font is topaz 11 (rather than the more usual topaz 8) and second, the mouse pointer disappears while you're typing. It reappears at the first movement of the mouse. This very convenient feature keeps the pointer out of your way while you're entering or editing text.

The default font of topaz 11 fits in very nicely with the vertical ruler and the usual printer spacing of six lines per inch. If you plan on printing at eight lines per inch, you would then choose the topaz 8 font, which also fits very nicely with the vertical ruler.

The pointer changes shape frequently as it moves around the screen, and when appropriate, it sprouts a small text box to identify the function of the gadget presently being pointed at!

The rulers also define margins, paragraph indentations, and tabs. Press the left mouse button and drag the margin indicator to make it larger or smaller. Full-window cross hairs help in aligning margins correctly. You may also adjust indentations and tabs this way. Hanging indents are established by using "negative" paragraph indentations—another capability not mentioned in the manual. All of these settings may be applied to the current paragraph only, or to the entire document.

Even with all this information present, you still see a full-width display, provided that you are using 8-1/2" wide paper with one-inch borders. If you want to see even more, use the drag bar and resizing gadgets to expand the window to fill the screen. Doing this, you lose the tool box on the left of the screen. You may elect to turn off the



rulers and horizontal scroll bar via gadget clicks or via a menu selection. A third option is to use the zoom gadget to expand the window to the maximum possible size without overlaying the tool box on the left side of the screen. This facility is most useful when working with the *n*th open document, which automatically has the smallest window of all open documents.

## PREFERENCES

Pen Pal maintains its own set of preferences in the "Wtr.INP" file and a special "Set Up" document. The "Set Up" document is simply an empty document with margins, tabs, paragraph indentations, fonts, and more, set to the values you find most convenient. The "Wtr.INP" file is established by going through a series of "Preferences" menu items and selecting the most desirable items and options for the program, the current document, the current database, text printing, and graphics printing. For each set of the selected preferences, the options are "Save" or "Cancel".

## TEXT EDITING

Pen Pal provides just about every text editing facility you would expect a high-level word processor to have. The insertion point is set by clicking the mouse pointer or by using the arrow keys.

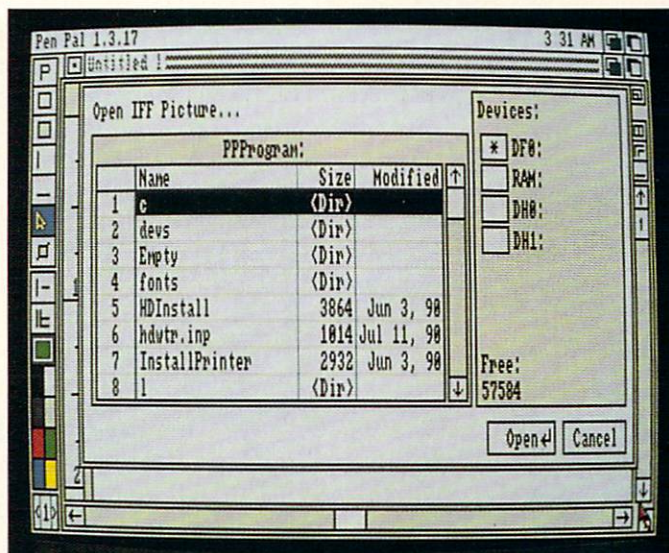
As text is entered, it is automatically displayed in the style (bold, underlined, italics, super/sub script, etc.), color, and font previously selected. Fonts are automatically defined in two different menus—one for size and one for name. Entered text is also automatically formatted according to the currently selected text alignment (left, right, center, or full).

Select text in a number of efficient ways: use a menu item to select the entire document (to make global changes in margins, etc.); click and drag; click at the starting point, shift-click at the ending point; double click to select a word; and triple click to select an entire line. Once text has been selected, you may delete it, replace it, change its style or color, or invoke any of a number of other

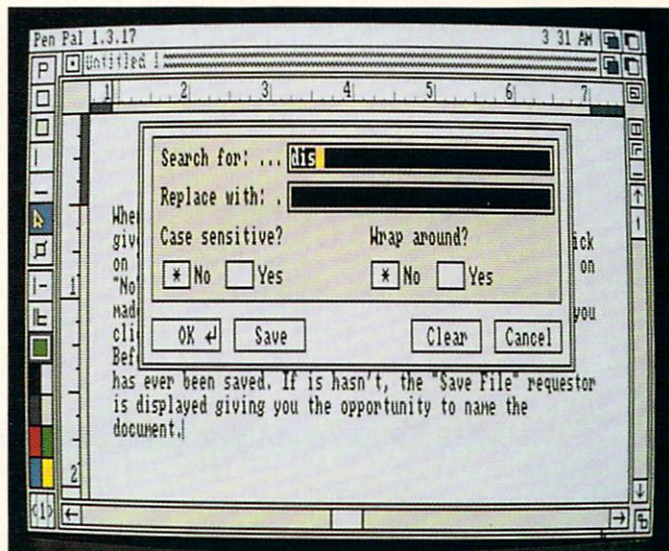
functions, such as Cut, Copy, Paste, and Clear.

Search and Replace operations provide a great deal of flexibility. The Search (case sensitive or non-case sensitive) proceeds from the insertion point to the document's end, and may optionally begin again at the start of the document. Replace options are the current selection only or all occurrences within the document. All Search and Replace operations are carried out via a special requester.

IFF and HAM pictures are imported into a document via a menu item.



Pen Pal's Search and Replace functions provide much flexibility.



You may quickly and easily move through a document by clicking in the slider or dragging the page elevator up or down. As you do this, the current page number appears in the elevator, making it very easy to find any given page.

Page headers and footers are also fully supported. They are inserted directly into the heading and/or footing margins and may include automatic current date insertion and page numbering. The number of lines is limited only by the size of the margin. This, of



# GRAPHIC WORD PROCESSORS



Working with the Amiga has never been a purely textual practice. Why should word processing be any less? Graphic word processors provide, all in one swoop, the ability to process text, place graphics, construct columns, and colorize text. These packages provide a vehicle for those who wish to perform page compilation on a relatively small scale. They include all the *basic* elements of desktop publishing, but without the excess features that would be warranted only in a full-fledged publishing endeavor, and without the higher price tag.

The ability to import graphics in a variety of formats and wrap text around such images are factors that set graphic word processors apart from straight Amiga word processors. However, as Kim Schaffer points out in his review of ProWrite, "a graphic word processor isn't just graphics; it still has to deliver the text." (the New Horizons' package, incidentally, does reportedly deliver). Indeed, by most definitions, graphic word processors are word processors first, to which the "graphic" attribute has been added. When selecting a graphic word processor, the

GENERAL					
	BeckerText	excellence!	KindWords	Pen Pal	ProWrite
Company	Abacus Software	Micro-Systems Software	The Disc Company	Softwood, Inc.	New Horizons Software
Price	\$150.00	\$199.95	\$99.95	\$149.95	\$175.00
Features					
ARexx Port					•
Auto HD Installation	•	•		•	N/A
Auto Backup File Creation	•	•	•		
Copy Protection					
Macros		•			•
On-line Help			•	•	
Clipboard Support		•	• <sup>1</sup>		

1: Text Only



importance of fundamental word-processing features such as dictionaries/thesauruses, grammar checking, search and replace, and mail merge are certainly elements which should not be underestimated in the wake of fancy graphics capabilities.

Basically, when it comes to putting it all down on paper, one needn't be limited to simply a textual mode, especially with the Amiga. The integration of word processing and graphics serves as an impetus to go beyond powerful textual content combined with a less-than-powerful graphical appearance, not to mention the reverse situation — one of form taking precedence over content. With a little effort, form *plus* content can be achieved.

Featured in the following charts are the five major Amiga graphic word processors: Abacus Software's BeckerText, Micro-

Systems Software's excellence!, The Disc Company's KindWords, Softwood's Pen Pal, and New Horizons' ProWrite (see full reviews of ProWrite, KindWords, and Pen Pal this issue, and of excellence! in the November 1990 issue). Although certainly the listed features do not exhaust the number of included features of any one of these packages, we have attempted here to highlight those features that the inclusion or omission of which would be most relevant to anyone interested in exploring the various programs.

*A bullet (•) indicates a product possesses that particular feature. Footnotes beside a bullet indicate a partial or related capability for the feature listed; see corresponding reference. Please note: For complete use of all features, the five packages require a minimum of 1 MB of RAM and Kickstart 1.2 or higher.*

<b>GRAPHICS &amp; TEXT</b>					
	BeckerText	excellence!	KindWords	Pen Pal	ProWrite
<b>Features</b>					
ASCII Import/Export	•	•	•	•	•
Auto/Soft Hyphenation	•	•	•		• 5
Auto Grammar Checker		•			
Auto Word Wrapping	•	•	•	•	•
Color Text/Graphics		•	• 3	•	•
Dictionary/Thesaurus	• 2	•	•	•	•
Flow Text Around Graphics				•	•
IFF Graphics Import:					
lo-res/ med-res/ hi-res/interlaced	•	•	• 4	•	•
Search/Find/Replace	•	•	•	•	•
Sort Capabilities		•		•	•

2: No Thesaurus; 3: Graphics Only; 4: Not Interlaced; 5: Soft Hyphenation



PAGE LAYOUT					
	BeckerText	excellence!	KindWords	Pen Pal	ProWrite
<b>Features</b>					
Auto Page Numbering		•	•	•	•
Drawing Tools				•	
Grouping				•	
Headers/Footers	•	•	•	•	•
Index/Table of Contents	•	•			
Multiple Column Page	•	•			•
On-screen Ruler		•	•	•	•
Page Guides		•	•		•
Paragraph Justification	•	•	•	•	•
Style Sheets					• 6
Table Support					•

6: One at a time

PRINTING					
	BeckerText	excellence!	KindWords	Pen Pal	ProWrite
<b>Features</b>					
Grey Scale Conversion		•	• 7	•	•
HP Laserjet Soft Font Support	•				
Mail Merge	•	•	•	•	•
Printing Formats					
Draft	•	•	•	•	•
NLO	•	•	•	•	•
Portrait	•	•	•	•	•
Landscape		•			•
Print To File	•	•			• 3
PostScript Support		•			• 9

7: When printing; 8: Via macro; 9: Optional





course, means that your top and bottom margins must be large enough to provide the required real margin on the printed document along with space for headers and footers.

## SPELL CHECKER

Pen Pal comes with a 100,000-word Main dictionary, a 1,500-word Common dictionary, and an empty User dictionary into which you may insert words of your choice. You may also set up additional user dictionaries if you wish, but only one of these may be used at a time; that is the one defined in "Document Preferences".

Spellchecking is performed quickly by individual word, paragraph, or document. If all three dictionaries are present, the order of search is Common, User, and Main. A word not found in any of the three is displayed in a requester that displays a scrollable list of similarly spelled words that represent suggested

correct spellings. You may type in a correction manually, add the word to your user dictionary, ignore the word and continue the check, replace the word with one from the displayed list, or ask for another list of suggested words.

Unfortunately, ignored words are not remembered from one occurrence to the next, and must be ignored again each time they appear in a document. User dictionaries may be edited and updated, but it is recommended that they be kept to a maximum of just 250 words each.

## ASCII FILES

Pen Pal fully supports the import and export of ASCII files—in fact, that is the only method supported for exchanging files with another word processor or text editor (like AmigaBASIC). The program apparently cannot recognize an input file as being ASCII; thus, when

importing or exporting ASCII files, you must always specify them as being ASCII. Also, when you save a document in ASCII format, you lose page headings and footers and paragraph indentations.

## FILE HANDLING

Pen Pal files automatically have ".WTR" appended to them, and only these files are shown from the default directory (specified in "document preferences") when the load file requester is invoked. However, this directory may be changed at will, and a "Show All" gadget may be clicked to show all files in that directory.

"Save" and "Save As" options facilitate the naming and saving of documents (new documents are opened with a name of "Untitled 1.WTR"). "Rename" and "Delete" are also available via the menu, but the file in question must be loaded before these options can be used. It would be better if these options worked

## Software Titles

3D Professional  
688 Attack Sub  
A-Talk III  
A.M.O.S.  
A10 Tank Killer  
Ac-Basic  
Advantage  
All Dogs Go To Heaven  
Amaz II  
Ami - Alignment System  
Amiga Vision  
Animagic  
Animation Station  
Arcade Smash Hits  
Audio Master III  
Aunt Arctic Adventure  
Auto Prompt  
AutoScript  
Bandit Of Ancient China  
Bars & Pipes  
Batman  
Battle Hawks 1942  
Battle Of Britain  
BattleTech  
Benchmark Modula II  
Beyond Dark Castle  
Black Gold  
Blue Angels  
Broadcast Tiltler 2.0  
Cadaver  
Caligari  
Can Do  
Cape 68K  
Carthage  
Chaos Strikes Back  
Check Mate  
Clown-O-Mania  
Clue Master Detective  
Code Name Iceman  
Colomer's Request  
Conquest Of Camelot  
Cribbage Gin King  
Cross Dos  
Cynused Professional  
Death Bringer  
Deluxe Paint III  
Desktop Budget  
Devpac Amiga  
Digi Mate 3  
DigiPaint 3.0  
Dino Wars  
Disk Master  
Disney Animation Studio  
Dos 2 Dos  
Double Dragon II  
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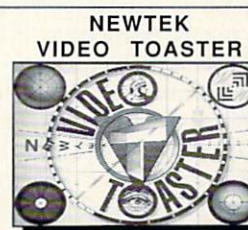
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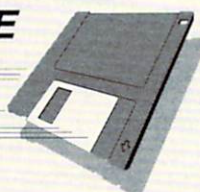
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with ASCII files (they do not) and were available via the load/save requesters (i.e., making it unnecessary to load the file first). Combined with "Show All", this would then allow you to use Pen Pal to erase old and unwanted files of any type from your disks.

## GRAPHICS SUPPORT

Graphics mode is entered by clicking the "Select Graphics" gadget in the tool box on the left side of the screen. Graphics support may be divided into two distinct areas: drawing, and importing pictures (IFF and HAM). Let's take a look at each and see how the two may be used in conjunction.

## DRAWING TOOLS

The available drawing tools are unfilled boxes, filled boxes, horizontal lines, and vertical lines. Each is chosen via a gadget in the tool box and drawn by pressing the left mouse button at the desired starting point and then dragging the line/box to its finishing point. Lines are always perfectly vertical or horizontal and boxes are always true rectangles (or squares), regardless of the dragging angle. Cross hairs also appear in the rulers to assist in the correct placement of the drawing.

Line weight (thickness) is also changed from the tool box; valid thicknesses for lines and borders of boxes are one through eight. Line weights above two result in double lines being drawn. Different colors may be chosen for lines and line/box fills. Setting the line and fill color to the same value allows really heavy lines to be drawn. Lines and/or boxes may also overlap, and shapes may be moved to the front or back as desired. They can be cut, copied, pasted, moved and resized at will.

## IMPORTING PICTURES

IFF and HAM pictures are imported into the current document via a menu item and a requester that specifies resolution text flow requirements, whether color 0 is transparent, and whether proportions should be maintained. Pictures are displayed in Pen Pal's eight working colors, but when a document is output to a color printer the full original palette is

used. This is true even if there are several pictures on a page with a combination of different resolutions and palettes, including HAM!

Once imported, a picture may be cropped, resized (proportionately or not), or moved within the document. Pictures may be overlapped, cut, copied, and pasted as desired. Text flow specifications—vertical left or right, contour left or right, or none—may also be adjusted. Note that contoured text works only when a picture's background is color zero, and color zero is transparent.

All the editing functions described above may be used with any combination of drawings and pictures.

## FORMS MANAGEMENT

Forms management with Pen Pal is really a combination of text, graphics (optional), and a rather unusual automatic prompting facility that is used to fill in the finished form.

Start by drawing a rough diagram of what you'd like your form to look like on a piece of paper. Now open a new document and type the text portions of the form where you want them. Define the input (or data) areas with pairs of brackets. For example:

```
Name - [ ]  
Address - [ ]  
State, Zip - [ ]
```

The data areas may not span multiple lines. If you would like the response to be in a style and/or font other than the standard topaz 11, simply use that style and/or font for the opening. When you fill in that field, the response will be shown in your desired style. Now, using lines, boxes, or any combination thereof, create the graphic portion of the form and save it as a normal document.

When you are ready to fill in the form, load it as normal, then select the "Fill in Form" menu item and the cursor jumps to the first [ and replaces it with a blank. Complete the entry and press Return, Esc, or the down arrow key to move to the next field; the ] is blanked first. When the form is filled in, select the "Stop Filling in Form" menu item, and

you now have a normal document which you may save or print. If you want to fill in another form of the same type, select "Restore Form to Original" to remove all your previous responses and restore the [ ] pairs.

## PRINTING

Pen Pal uses the standard printer drivers and performs the necessary chores well in two basic modes: Text and Graphics.

Select the "Print Document" menu item to get a requester which allows you to select text or graphics, fanfold or cut paper, the range of pages to print, and the number of copies desired. Printing begins and the operation is represented on a screen in the foreground. You cannot work on another document while the current one is printing, but you can click this screen into the background so you can work on another application, if you wish. The print function may be terminated at any time by clicking a cancel gadget.

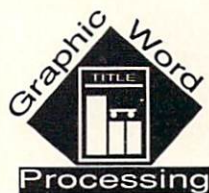
Besides getting information from the print requester, Pen Pal obtains printing parameters from two other sources. First is the "Text Print" or "Graphic Print" preferences you have supplied. This information includes draft/NLQ, lines per inch, pitch for text, and all sorts of information (aspect, dithering, shading, etc.) for graphics.

Parameters are also obtained from the information provided after the selection of the "Page Setup" menu item earlier. This includes paper type, page orientation, and starting page number.

Text mode printing produces superior text quality (especially if you select Near Letter Quality) and takes place much faster than graphics printing. Text always prints at maximum speed in this mode even if the physical line contains a partial graphics image. Disadvantages to working in the text mode are the limit of just one font per document—the standard font of your printer—and the limit of text color to black (even if you use a color printer).

On the other hand, graphics mode printing allows the use of all bitmapped fonts and different colors for various pieces of text (down to individual let-





ters) and provides true WYSIWYG output. Disadvantages are the substantial reduction in printing speed, and resulting print characters that are not as sharply defined as those printed in the text mode.

One more thing to remember: If you select margins that are not exactly divisible by the predefined density of the printer you are working with (usually 10 characters per inch horizontally and six lines per inch vertically), you may find the printed output is not exactly as seen on the screen. If you use these default values with your printer, you may find it best to stick with margins that are multiples of 1/2 inch in size.

### THE INTEGRATED DATABASE

Another appealing feature of Pen Pal is its built-in database capabilities. They may not be quite as extensive as many independent database packages; however, they are a lot more powerful than you might expect.

Pen Pal's database uses the column-row-cell method of displaying, entering, and storing data, like a spreadsheet. This format is easy to display and enter data into, and generally easy to work with. It is also the format used by many other database systems.

Columns may be defined as having one of ten different data types, with full automatic editing during data entry and editing. Definitions may be changed at any time (as of revision 1.2), as long as the data fits the new definition. The width of columns as shown on the screen may be changed by clicking on the column boundary and then dragging it to expand or contract the visible portion. Complete cut-and-paste facilities—either interdatabase or intradatabase—are also provided for rows and cells. Further, appropriately defined ASCII files may also be loaded into databases, which may subsequently be saved as ASCII files. A powerful "calculate" feature is also provided.

Selecting subsets of data for viewing or reports is easy! Click on "selection" buttons (equal, greater than, not equal, etc.), then click on a cell shown in a scrollable list to apply that option to that cell's value. Selecting different cells in the same row represent AND condi-

tions, while selecting cells in different rows represent OR conditions.

Two print options are also available: labels (up to eight across and/or multiple copies of each label) or standard reports which allow for a certain degree of customization. Report definitions may also be saved as "views," for those reports which will be generated on a regular basis.

Finally, complete databases or subsets thereof may be sorted on as many columns as desired. And the sorting is fast!

### DOCUMENTATION

In general, the documentation included with this package is really very good. Plenty of illustrations guide you through the many paths you may wish to take, with a major emphasis on the menu contents. This is important because menu contents change dynamically to reflect the various available options at any given time. Tutorial and references sections are also included.

Nevertheless, some referenced pieces are missing, while others are hard to find. There are several references to the "Set Up" document, including one which promises it will be described later, but it never is! Trying to find how to start page numbering at other than "1" was also a challenge for me—I finally found the facility in the "Page Setup" menu item. Additionally, the installation section should be expanded to include further options, and the CLI should not be totally ignored.

### MISCELLANEOUS FEATURES

Pen Pal features a number of other capabilities which add to its usefulness. Among these are full color control, interlaced operation, a WYSIWYG word processor, and full statistics (word, character, and/or sentence count for the current paragraph or entire document, etc.).

### BUGS AND MISSING FEATURES

Preferences really should have "Use" and "Reset" options so that values (especially the "Set Up" document) may be changed on a temporary basis.

Hanging indents are difficult to create and don't always translate to printed output correctly. There must be an easier method. Icons for saved documents should be optional, especially since they are not required and may be deleted if desired. It would also be nice to be able to copy properties from one paragraph to another. Finally, it would be helpful if imported ASCII documents took on the characteristics of the current document rather than the standard system defaults.

### AND IN THE END ...

This review was performed on release 1.0f and a pre-release version of 1.2. The current release is 1.3.17, which includes no new changes.

Pen Pal is a powerful word processor with an equally powerful built-in database system. I believe Pen Pal may eventually become the Amiga word processor "of choice", but there are still some bugs to be fixed before that becomes a reality.

Should the word processor and database be separated, or kept as a single package? Integration allows the two components to work perfectly together—far more perfectly than two separate programs, even two designed to be compatible. On the other hand, there is a price to be paid for this flexibility. A lot of memory is required, and the learning curve cannot help but be a little steeper, especially before both components may be used in unison.

Perhaps two individual programs, distributed together? This would allow users with smaller configurations equal access to what is really a very fine package.

You owe it to yourself to take a really close look at Pen Pal, even if you're perfectly satisfied with your current word processor and/or database system!

•AC•

Pen Pal  
Price: \$149.95  
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# DIVERSIONS



## THE UNTOUCHABLES

by Miguel Mulet

If you've watched enough late night or weekend television, you've undoubtedly caught an episode or two of "The Untouchables." Elliot Ness, toting that old machine gun of his, was always after the Bad Guys. Interest in "The Untouchables" resurfaced after a movie of the same name was made, starring Kevin Costner and Sean Connery. In the game, you get to reenact scenes

from this movie, including the famous "Baby-Carriage" scene.

"The Untouchables" is a typical shoot 'em up, where you play Elliot Ness or a colleague trying to collect enough evidence to convict Al Capone. The game is divided into 6 "scenes," in which you shoot almost anything that moves. The first portion of the game takes place in Capone's warehouse, where you collect parts of

Capone's bookkeeping record. There you're tipped off to an illegal liquor run at the border, where you shoot bottles of liquor which appear on the bridge. Afterwards, you head back to Chicago, chasing Capone's henchmen through the alleys of the city on your way to the train station. There you must protect innocent bystanders while trying to free Capone's accountant from his assailant. Lastly, you must eliminate Frank Nitty, Capone's head hit man.

From a technical standpoint, "The Untouchables" is well done. Graphics are fairly good, and the screen scrolls well. Sound effects are limited to a few screams and grunts as you shoot down the mob, as well as the ever

present sound of bullets. Gameplay, however, does not fare as well. Although there are six different scenes, the main activity remains the same; shooting the bad guys, shooting bottles, shooting the bad guys again...and on and on. I found myself getting a little restless performing the same task. Also, it didn't take very long to complete each scene.

If you're a diehard "Untouchables" fan (or a closet Rambo), then I suggest you try this one before you buy. Otherwise, this game probably isn't for you.

## ELVIRA

by Joe DiCara

Way back in Elvira's distant past it seems her great-great-grandmama, Lady Emelda, turned the family palace into the local chamber of horrors. Now Castle Killbragant has been handed down to Elvira and she has decided, in her own strange way, to turn this forlorn estate into the best tourist trap this side of the English Moors. After awhile the place was ready for guests, or should I say victims, so an announcement went out inviting all to "Elvira's Horror Weekend" retreat. The problem is, the place soon turned into a vacation haunt for the undead and all manner of things that go bump in the night. Worst yet, Elvira has been made a captive in her own castle because all the ghosts and goblins think she's old evil grandmama herself and they have more than just a few things to settle. Elvira, in her desperation, has

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### GAMES REVIEWED:

The Untouchables  
Elvira  
Obitus  
Spirit Of Excalibur  
Lemmings

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managed to place an ad in the *Broomstick Weekly* seeking the help of any ghostbuster that might be foolish, ah willing, to venture within the castle walls to effect her rescue. You, of course, are that brave knight.

As chief castle-cleaner in this interactive fantasy/puzzle, you will have 800 rooms to explore, over 300 objects to examine, and hundreds of potions and spells to conjure up. The game promises over 100 hours of entertainment. I'd say that's a very conservative claim. Unless you are totally up on all the vampire, Frankenstein, and werewolf flicks ever made, I guarantee you will need a month of evenings, and you will expend more lives than a litter of cats, before you solve this sick pup.

One brief word of warning. If you desire to put off all appearances of evil, as the Bible instructs, then do not give Elvira even a first glance. But I know such words of wisdom never stopped us before — so grab your silver cross and stake and have a go at it. Oh yes, please leave all mirrors at home.

The game is challenging. You must draw detailed maps and write down the location of objects if you hope to succeed. Also, never fail to consider both the obvious and the obscure. The solution to some of the puzzles in this game are so obscure that, mercifully, Accolade quickly made a hint book available for amateur ghostbusters like myself.

The game will run on any 500, 1000, or 2000 with at least 1 meg of memory, but because it takes five disks to hold all the graphics, sound effects, and music, a hard drive greatly enhances game play. The artwork and animation are superb—perhaps at times a bit too realistic and graphic, but then that's what you're paying for, right?

So if spider webs, creaking doors, and lots of blood don't bother you, Elvira is beckoning you to your doom. Oh, I'd recommend leaving a light on when you play this one.

## OBITUS

by Miguel Mulet

No one likes to drive in rainy weather. Traffic worsens, visibility is lousy, and accidents are waiting to happen. If you're Wil Mason, you will have another reason to hate

driving in bad weather. That's because Wil drives his car into a ditch during a rainstorm, and while searching for help finds more than he bargained for—a ticket to the Middle Ages!

*Obitus* is a new role playing game and arcade adventure, all rolled into one. You assume the role of Wil Mason, mysteriously transported into the world of Middlemere sometime during the Middle Ages. Wil's travels will take him through the four shires of Middlemere, facing dangers such as trolls, soldiers, and wolves. Your

Fighting thugs on the streets of Chicago in "The Untouchables".



Entering Elvira's haunted castle.





job is to find out where you are, and how you can get back home.

Psygnosis, publishers of *Obitus*, are most famous for their arcade games featuring excellent graphics, sound, and smooth horizontal scrolling. Luckily, they have continued this tradition with *Obitus*. The arcade sequences are similar to most other Psygnosis

*Obitus* is an excellent blend of arcade action and a role-playing adventure. The game spans three disks and has a well-written manual. An *Obitus* T-shirt is also included. Gameplay is excellent, and will keep you interested for hours on end. If you like either arcade games or adventure games, take a look at this one.



The icon-driven interface of "Obitus".



Camelot, home of the Round Table and Excalibur.

games. The adventure sequences are also well done. As you explore the numerous mazes, the scenes scroll smoothly by. Make sure you map them out with pencil and paper; things start to look the same after a while. All the screens feature excellent graphics. The interface for interacting with other characters is icon-driven, and easy to use. You maneuver through the different lands with your joystick, so you have to keep both mouse and joystick handy.

## LEMMINGS

by David Brown

Every once in a while there is a program that comes along that makes you ask, "Why didn't I think of that?" It doesn't need to be the most sophisticated new productivity product. In fact, most often this startling obvious idea is an extremely simple one — like *Lemmings*.

In *Lemmings*, Psygnosis has once again brought a simple theme to a graphically exciting game. Without your help, charming but mindless creatures will walk off cliffs, stray into fire, or drown in assorted fluids. In order to advance in the world of *Lemmings*, you must direct a proportional number of the little beasties safely through the many dangers of each level. You do this by giving powers to *Lemmings* to dig, climb, float, block, or build. There are 120 one player levels (4 different levels of difficulty—fun, tricky, taxing, and mayhem), 20 two-player levels, and 21 pieces of music.

While music is strictly a matter of taste, and some may find the light lines of music a bit annoying, the game would be at a loss without it. The music changes with each level to add background and accent to each new difficulty, but it can be turned off by the user. Sound effects are handled extremely well so that even a *Lemming* facing certain destruction is heard in a small anxious voice say, "Oh No!"

Only your quick thinking can save them and advance you to the next level. Each successive layer demands another set of skills as you discover a way to get through the level—there may be more than one way to pass through a level—with enough *Lemmings* remaining to advance you to the next. But, once you have conquered a level, it is yours for life (if you record the long password for that level) and this feature makes *Lemmings* a real winner.

While the two player levels can be exciting, the screen is split for each player and suddenly you are faced with half the information you are used to using in a single-player game. However, it does create competition and it will relieve the old problem of playing a game seriously while someone stands over your shoulder hoping you will lose so they can have a turn.

*Lemmings* has all the makings of a classic. It is based on a clever and unique idea, it is easy to learn, it can become more challenging with each level, and it is addictive. Psygnosis



has not only scored a hit, they have created a lot of sleepless nights for the rest of us. Now why didn't I think of that?

## SPIRIT OF EXCALIBUR

by Miguel Mulet

Almost everybody knows the story of King Arthur and the Knights of the Round Table, and how that story ends. King Arthur and Mordred lie dead, and Sir Lancelot grieves over Arthur's grave. The Round

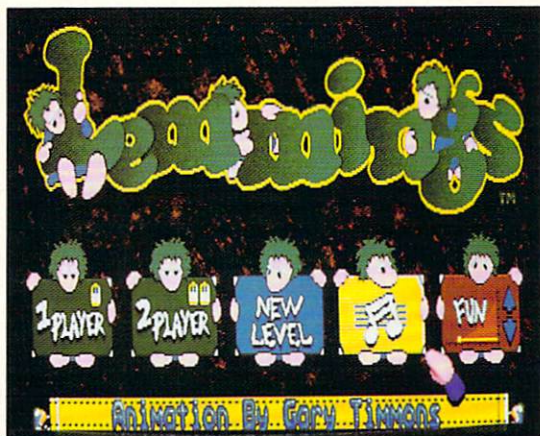


Table stands empty, the knights in disarray. Yet Arthur's dream of a peaceful, united England remains in the hearts of many, including the Crown Regent, Lord Constantine. Constantine was Arthur's choice as successor to the throne, and

Arthur depended on him to carry on with the Round Table. Thus, the "Spirit of Excalibur" lives, and you, as Lord Constantine, must reunite England. Spirit of Excalibur is a wonderful role-playing adventure game, set in Arthurian England right after the death of King Arthur. The game is divided seamlessly into five episodes, each of which is progressively more difficult. In the first episode, you must make your way to Camelot, to claim the throne. Once there, you must convince the knights that are left to rejoin the Round Table and stop the Saxons from attacking London. The third episode pits you and your forces against a giant warrior, who may not be what he appears. Once you have defeated the giant, you face a new adversary who has managed to kidnap many of your loyal followers. Lastly, Constantine must face his old adversary — the evil witch, Morgan Le Fay.

The game is extremely well done. A musical soundtrack plays in the background during most of the

Accolade's  
Lemmings



sequences, supplemented by numerous sound effects. The backgrounds are clearly depicted, as are the individual characters. The map of Britain is about 16 screens large, with a lot of detail. The game uses the mouse to control an icon-based interface, making the game extremely easy to play. Keyboard shortcuts may also be used, making gameplay even faster.

Spirit of Excalibur is much like the old classic Defender of the Crown, but on a much larger scale. The majority of gameplay surrounds strategy. (For example, deciding which knights to send to accomplish a specific task.) In addition, characters interact freely throughout the game. You can talk, trade, or even fight other characters. If a physical conflict develops between the

characters, you can have the computer fight for you, or control the character yourself. Battles between armies are handled in the same way, with the player choosing just to see the result of the battle, or actually witnessing the battle himself.

The game is provided on three non-copy-protected disks. The game does require the user to identify locations on a large color map provided with the game. The documentation is also well done, giving enough information to get the player started without giving away too much.

All in all, Spirit of Excalibur is an excellent role-playing/adventure game. It will provide many hours of enjoyment to both adventurers and strategists alike, especially if you like anything to do with King Arthur.

•AC•

## PRODUCT INFORMATION

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# Medley



by Phil Saunders

Customizing a standard MIDI file to match specific synthesizers was the subject of last month's column. Setting up several synthesizers with the proper sounds for a song can be quite an undertaking. It may involve loading the proper patches into the synthesizer(s), setting the levels of various synthesizers and sounds, and assigning particular sounds to specific MIDI channels.

Naturally, all these settings change with every song. This column will discuss ways to save your setup information with your sequences so that each time you play a sequence the computer can automatically configure your synthesizers. This automatic setup is perfect for live performances.

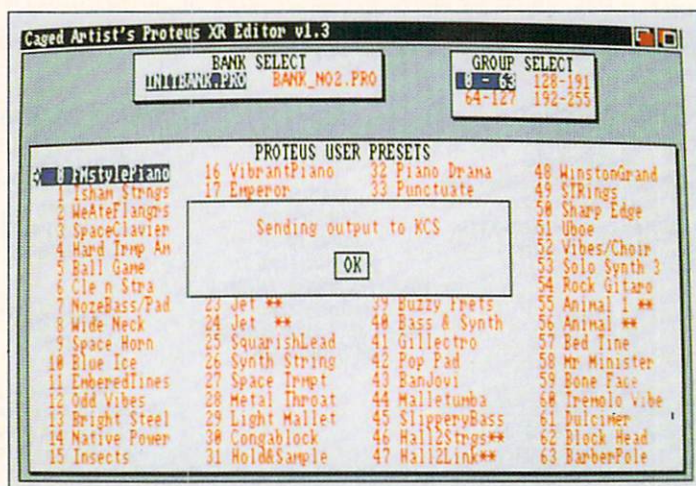
Both patches and setup information can be saved using System Exclusive commands. System Exclusive

(SysEx for short) information is part of the MIDI specification which allows synthesizer-specific information to be transmitted via MIDI. Most MIDI information, like note on, pitch bends, and patch change commands, will play on any synthesizers assigned to the proper channel. SysEx commands use special manufacturer and product codes so that each synthesizer will only respond to "its" SysEx commands. All others will ignore the SysEx data. Most Amiga sequencers allow SysEx information to be recorded along with other MIDI data as part of a sequence. (You may need to turn on the ability to record SysEx data via an options or environment screen).

SysEx data is transmitted in the following format:

- \$F0 System Exclusive status byte
- \$18 Manufacturer ID byte (EMU)
- \$04 Product ID byte (Proteus 1)
- dd Device # byte (Device #)
- cc Command byte (Proteus command)
- ... SysEx data (number of bytes varies)
- \$F7 EOX (end of System Exclusive data)

The patch editor's output is directed to Dr. T's KSC.





The initial \$F0 (decimal 240) indicates the start of the SysEx data; the \$F7 (decimal 247) indicates the end of the transmission. Each manufacturer registers a Manufacturer and Product ID byte with the International MIDI Association so that each synthesizer has a unique code. These bytes are how a synthesizer "knows" whether it should respond to a SysEx transmission. The device number is frequently used to differentiate between two or more of the same model of synthesizer. The command byte tells the synth to perform some operation. The details of the commands and the data format vary from synthesizer to synthesizer, but all SysEx transmissions will start with a \$F0 and end with a \$F7.

There are two limitations to keep in mind when storing SysEx data in a sequencer. The first is that some sequencers can only handle SysEx transmissions of a limited size (usually 4-5000 bytes). This means you may not be able to store an entire bank of sounds as SysEx data in your sequencer (for example, a Proteus XR SysEx dump of all patches may total more than 66,000 bytes). The second limitation is that some older synths may require acknowledgement that the data they sent was received. This acknowledgement is usually referred to as "handshaking". Handshaking is difficult to implement within most sequencers, so we will only consider synths that do not require handshaking protocols.

There are two requirements to consider in setting up a synth: the synth must have the necessary patches in its memory, and it must be configured properly. We'll consider saving patches first.

If you always use the same bank of patches or if the synth contains no user patch memory, it may not be necessary to save patch data. SysEx data can be used to transmit patches from one synthesizer to another synth of the same type. If we record the SysEx data for a patch sent from a synthesizer, when we play the data back the synthesizer will load that patch. This procedure also works for banks of

patches. The trick is to get the synthesizer to transmit the SysEx data for the required patches. Information on how to transmit a patch via MIDI is usually contained in the synthesizer's manual.

Typically you must first enable the transmission and reception of SysEx data on the synth. You then select a command on the synth's front panel to transmit a patch (or bank of patches). The synth will

---

*The advantage of using this method of storing SysEx information is that no special knowledge of SysEx data is required. All you need to know is how to transmit patches and configuration data from your synth's front panel.*

---

ask you to select which patch (or bank) to transmit and then require you to hit a button to transmit the data. Set your sequencer up to start recording SysEx data and then push the button to transmit the patch. Once all the data is recorded, you can stop the sequencer.

Now play the sequence from the beginning. The SysEx data should be transmitted to the synth (on most synths a message will appear on the synth's display indicating that it has received the data). On some synthesizers you may need to transmit an entire bank of patches rather than individual patches.

The configuration data of a synthesizer includes information regarding which patches are assigned to which channels, the volume and panning selected for each patch, and other information about the synth's setup. There is usually a command on the synthesizer's front panel to transmit this configuration data via MIDI. Follow the same procedure as in recording patch data. SysEx data for patches should be stored at the beginning of the sequence, followed by the configuration data. SysEx data preempts all other MIDI information, including timing and note data.

Once the sequencer sends all the SysEx data, it will then spit out the timing and note data in a hurry to "catch up" with where it should be in the sequence. Since this can affect the tempo of the playback, you should generally place two blank measures before the actual music data begins. The blank measures will allow the SysEx data time to be transmitted before the music begins to play, ensuring that no audible change in tempo will be heard.



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The advantage of using this method is that no special knowledge of SysEx data is required. All you need to know is how to transmit patches and configuration data from your synth's front panel. The format of this data is of no concern. The sequencer just recognizes when a SysEx transmission starts and when the data ends. Everything in between is part of the SysEx transmission and is stored as a unit.

Most sequencers allow you to edit the SysEx data on a byte-by-byte basis, but this is not usually necessary. The only time there might be a problem is if your synthesizer does not have a front panel command to transmit patches or configurations. In this case you may need to manually input SysEx commands that will cause your synth to transmit a patch or the configuration. Dr. T's Keyboard Controlled Sequencer (KCS) allows the user to input a series of

one-byte codes that can represent a SysEx sequence (in fact, this is how SysEx data is stored). Enter the series of codes that instruct the synthesizer to send a specific patch or configuration. This information should be at the end of your synthesizer manual.

When you are ready to record, the sequencer will send SysEx commands that tell your synthesizer to send the patch. The sequencer will then record the incoming patch data. Once you've recorded the SysEx data you want, erase the SysEx codes you entered. One drawback is that the SysEx codes are usually given in hexadecimal, while KCS requires the data to be in decimal. There isn't space here to discuss conversion between bases, so just remember that the AmigaBASIC manual has a complete conversion table for numbers from 0-255 (0-\$FF).

If you use KCS along with a Dr. T's patch editor/librarian, there is another easy way to record SysEx data into your sequencer. First, start KCS. Then load a Multiple-Program Environment (MPE) compatible patch editor. The MPE allows you to switch between programs and to route MIDI data between programs. You can use the patch editor to move patches to and from your synthesizer and to change which patches are playing.

Once you are satisfied with the synth's configuration, you are ready to save the data to KCS. Select "Output to KCS" under the MPE menu of the patch editor. Now switch to KCS and start recording. Switch back to the patch editor. Highlight the first patch you want to send and then select "Send Patch" under the Send/Receive menu. Continue until all necessary patches have been sent. Then select "Send Setup" from the Send/Receive menu to record the synth's configuration. Now switch back to KCS and edit the Track or Sequence that contains your SysEx data. Change the entries in the Time column to zero so the SysEx transmission will start on the first beat of the first measure. Now your synthesizer will automatically be configured when you play the sequence.

You should store SysEx information for each synth that needs to be configured. While storing SysEx information in a sequencer is a handy way to automatically configure your equipment for each song, it is not practical for storing a large number of patches (or large banks of patches). Next time, we'll consider how to use William Barton's MIDI library and Music-X protocols to save SysEx patches, banks, and configurations.

•AC•

## Product Information

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Price: \$249.00

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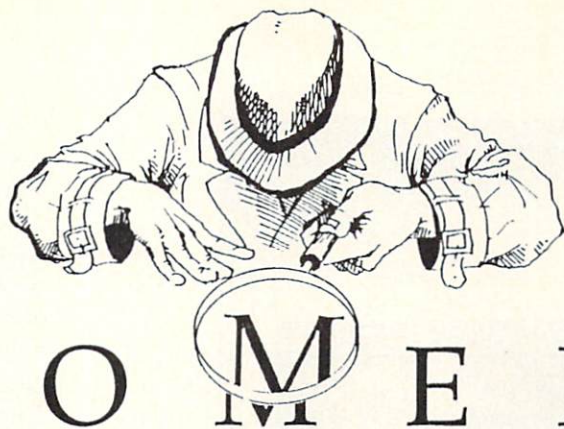
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# R O O M E R S

by The Bandito

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## COMMODORE

THE BANDITO LOOKS AWAY FOR a while and Commodore starts making vast changes! The dumpsters in West Chester have been overflowing with juicy bits of data, which The Bandito has carefully pasted together (shredders really make a columnist's life difficult). For starters, there's been some reorganization of the Commodore U.S. operation, starting at the top. Yes, Harry Copperman has been kicked upstairs to become a VP of Commodore International, while Jim Dionne has been brought in from Commodore's highly successful Canadian operation to take over the American operations. What? You're surprised? Haven't you noticed that Commodore changes its management every year or so whether it needs to or not?

In this case, it's the same old story. Copperman was brought in with high hopes. He changed things around, but sales didn't improve. That meant it was time for a new

executive. So Irving and Mehdi (the top dogs at the big C) decided to tap Jim Dionne for the somewhat dubious honor of "new man in charge". Just lay your head right there on the block, in that groove...don't mind the red stains. Staffers at Commodore think this is a positive change; they give The Man of Copper good marks for under-

and factory jobs. Scuttlebutt has it that most of the jobs lost were due to a re-focusing of effort on consumer sales, and de-emphasizing the business marketing. Not to mention the lowered sales of C-64's and PC clones, and the non-growth in US Amiga sales. Among the victims: the man in charge of marketing to the federal government.

**...Jim Dionne is a consumer kind of guy, and the feeling is that Commodore's future success is in the consumer market.**



standing the business market, but Jim Dionne is a consumer kind of guy, and the feeling is that Commodore's future success is in the consumer market. After all, that's where Commodore had its only big winner in the past, the C-64 (over 11 million units sold, making it the most popular home computer).

At the same time that management was being shuffled, Commodore reduced the company's U.S. work force by about ten percent. Layoffs were mostly administrative

Commodore is being shaken up like never before, and it looks like the company will be very different this time next year. For starters, they want to remove the revolving door from the president's office (5 presidents of Commodore U.S. in 6 years). Part of that means that Dionne probably won't have the same amount of power that Copperman wielded. They're hopeful that a renewed interest in consumer marketing will pay back manyfold.





Photo courtesy of Commodore Business Machines Inc.

**Expect to find CDTV sold wherever you can buy a VCR or a stereo.**

Speaking of pay back, the sales picture has been rather interesting at Commodore lately. Commodore International reports sales for its second quarter, that ended December 31, 1990, increased 24 percent to \$384.1 million. Compare that with \$310.7 million during the same quarter last year. The income figures were even better, due to aggressive cost-cutting. Net income for the quarter more than tripled to \$36.5 million compared to \$11.3 million in the quarter that ended December 31, 1989. During the six months, that ended December 31, 1990, sales increased 23 percent to \$584.4 million, compared to \$476.0 million for the last six months of 1989.

Europe accounted for 85 percent of the total sales for the quarter, which just goes to show how poor the U.S. results were. Several places in Europe had their sales grow over 50 percent, mostly due to the Amiga.

Commodore's new PC clones did well in Europe, but, of course, did almost nothing in the U.S. And even the venerable C-64 sold about the same as last year, though of course its U.S. sales dropped sharply while overseas sales rose.

## **What are some of the additional hardware goodies planned for CDTV? Glad you asked.**

Compare all that good news to what's happening in the U.S. market for Commodore. Their fiscal year 1990 earnings for Commodore Business Machines (that's the U.S. division) were \$1.5 million, down 97 percent from last year. Sounds like it's time for a new boss, all right.

The bigger picture of how Commodore is doing in the overall market shows cause for concern.

Compared to other computer manufacturers, the big C is way down the list on total units sold in the U.S. About tenth, to be precise, selling about 227,000 units (that combines Amigas, PC clones, and C-64's). Compare that to Apple, who sold almost 900,000 boxes, or IBM, who sold 1.6 million computers. Total, about 8.7 million personal computers were sold in the U.S. last year, so you can see just how low Commodore's market share is for the Amiga. That's why they're looking to the Amiga 500 and CDTV, because only in the mass market can they sell in the volumes they really need.

The Bandito hears that Commodore is cutting deals with big mass-market retailers like Toys R Us and Kmart to get the A500C in as wide a release as possible this year. This would mean a significant price drop by the Christmas selling season, so be prepared to find an Amiga for under \$350 in your future. That would be a great present. Of course, they have to do that if they're going to bring out CDTV as low as they want.

Speaking of CDTV, you should be seeing the first of them on the shelves by the time you read this. At least, that's Commodore's hope. At CES, audio/video dealers were drooling over it. Expect to find CDTV sold wherever you can buy a

VCR or a stereo. The initial retail price will list at \$995, but you can bet that discounting will soon bring it down. With any luck, the CDTV price may be as low as \$600 on the street by year-end.

What are some of the additional hardware goodies planned for CDTV? Glad you asked. The Bandito hears that Commodore will offer one of those cute little 2.5" 20 meg SCSI





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hard drives as an internal add-on for CDTV (40 or 60 meg drives are possible; expect third-party manufacturers to offer these); no word on retail pricing, but The Bandito would expect something in the neighborhood of \$300. Commodore also plans a CDTV genlock to retail for under \$80. Of course you'll be able to get keyboards, mice, trackballs, joysticks, and so on in infrared or wired versions. And you'll be able to get a personal RAM card of 64K or 512K; the 64K card will sell for about \$10 (a great way to store data for a game or even a paint program). Not to mention the usual sorts of things you can already hook into your Amiga, like disk drives and printers.

The list of initial software titles are what Nolan Bushnell (CDTV division manager) calls "shovelware". These are titles from other media shoveled onto a CD-ROM. The Bandito notes several titles initially developed for Macintosh or IBM CD-ROMS headed for CDTV. Don't expect really different software for another 6 months or more after the hardware comes out. But some major players are supporting CDTV, including Disney, Gold Disk, and Sierra On-line.

The CDTV drive has an impressive hidden feature: a data transfer rate of 2 megabytes/sec in burst mode (it's 171K/sec normally). That's comparable to the speed of a reasonable hard disk, and should enable some impressive graphics and sound capabilities. Oh, and it has brand-new 512K ROMs that include some very cool stuff, such as the neat screen used to play back audio CD's. You get to see the audio CD on screen and click on any track to play. You can even watch a simulated laser beam bounce off the disk. Great fun!

Commodore plans to license audio/video compression software for real-time video on CDTV, according to the data The Bandito has uncovered. They showed demos of such video in their CES booth: quarter-screen, about 15 frames per second in HAM mode. It looked very good. The Bandito has heard whispers that a hardware add-on is to be introduced this fall to add full motion video to CDTV, but no word on price or precise features. The Bandito will keep trying to uncover more about this, but it seems certain that Commodore is getting ready to respond to any threat to their CDTV

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market that CD-I may pose, whenever it appears.

Commodore is also showing a prototype CD-ROM drive for the Amiga to debut this summer; the price and delivery date are not yet set. No word on when an internal CD-ROM drive might be available. The engineering required is not precisely run-of-the-mill.

### ATARI

WELL, NOW IT'S TIME TO LOOK at what Atari is up to. Once again, the Tramiels refuse to give up on their long-dead computer, the Atari ST. So they've changed a few things around and are once again touting the ST as the ideal computer for home, office, or school. The new version of the 1040 ST is called the 1040 STE; although the Bandito doesn't really know what the "e" stands for.

It's rather amusing to read the spec sheet on the STE; it reminds The Bandito of an Amiga 500 created by a primitive tribe that had never actually seen an Amiga, but had heard reports from missionaries of what the Amiga could do. Check it out: the STE boasts a color palette of 4096 colors, just like an Amiga, but



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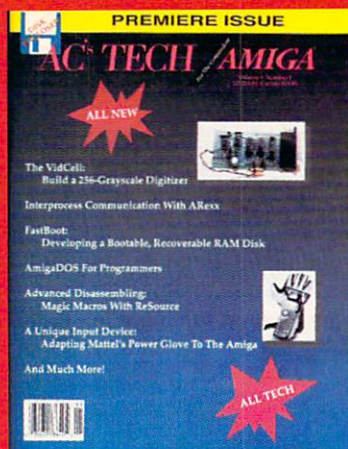
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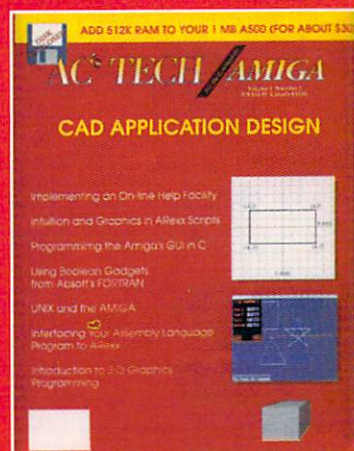
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you can only display 16 colors at once in 320 x 200, and only 4 colors in 640 x 400. Oh yes, the STe does have 640 x 400 output, but only on a separate black & white monitor available only from Atari. Sure, the STe comes with a blitter chip, but there's no software that supports it and none being written. OK, the STe does have a brand new stereo sound chip, but you won't find any software that uses it. Well, the STe does come with 4 megs of RAM and a street price of about \$699, when you can find a store that sells it. (Of course, that price is without the extras you need, like a monitor, another disk drive, or a hard disk.)

Does Atari really expect the STe to revive Atari ST sales? Even in Europe, hardware sales are falling off for the ST line. The PC clones and the Amiga have pretty much won in the race for market supremacy in Europe.

Where does that leave Atari? Right back in the videogame business, that's where. And they're responding vigorously to the threat to the Lynx's market share. The Lynx, you'll remember, is the handheld videogame designed by

RJ Mical and Dave Needle, two of the original Amiga designers. It's almost like a handheld Amiga, if you will. Well, now both NEC and Sega have introduced color handheld games and Nintendo supposedly has one in the wings. So Atari very cleverly cuts the retail price of the Lynx from \$189 to \$99.95, leaving all the other machines in the dust. The Bandito isn't sure how they can make money at that price, but on the other hand, Atari is the only company supplying software for the machine, so perhaps it's the old razor blade theory at work (make your money selling razor blades, not razors).

Atari has also dropped the price on their handheld PC (almost) clone, the Portfolio, to \$299 from \$399.

## Does Atari really expect the STe to revive Atari ST sales?

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## CLARIFICATION

IN THE FEBRUARY EDITION of "Roomers", mention was made of Colorburst from Memory And Storage Technology for its ability to generate 16 million colors painted directly in 24 bits. The article went on to say that this same procedure is currently under litigation by "Quantel, who claim a patent on certain processes relating to real-time, 24-bit painting for video systems."

Neither the Bandito nor this magazine meant to imply that Colorburst was under litigation. M.A.S.T. officials have assured *Amazing Computing* that there is not now, nor has there ever been any litigation between their company and Quantel (this was also stated in the article) and that their Colorburst system is based on a different procedure than the Quantel system.

We apologize for any confusion that may have resulted.

For further information, please contact M.A.S.T., 1395 Greg Street, Sparks, NV, 86431, (702) 359-0444.

•AC•



# C NOTES

From the C Group  
by Stephen Kemp

EACH YEAR, FOR THE APRIL ISSUE, I like to set serious C coding aside and take a look at the lighter side of programming. This being the appropriate month, I have strung together a series of random thoughts and occurrences in the hope that someone, somewhere, might find them amusing.

Have you ever noticed that many movies often do a poor job portraying the use of computers? For example, many of you probably saw the "computing" scenes in the Terminator, but did you take a close look at what flashed by on the computer screen? It looked like source code to me, with some of it even having comments. You don't suppose he ran interpretive, do you?

Since the scenes flashed by so quickly, I'm not sure why the writers didn't just use a bunch of 0s and 1s. Anyone who knows anything about programming computers shouldn't have been fooled by the scene, and almost everyone else wouldn't have noticed the difference anyhow. Let's hope that the sequel will be a little more realistic.

Maybe I'm being too picky, since reality is something that comes and goes in the programming world. As programmers, we have to be very precise in our coded instructions to accomplish a task successfully. This is the only "true" reality. Little else about programming comes close to such precision or realism.

The code we write must be precise, yet everything else about writing code is imprecise. Everything usually takes longer than you predict. Programs become bigger and slower than desired. And when the program is finally completed, somebody comes along with a brilliant comment that begins, "What we should have done is ..."

As an example of the reality (or lack thereof) that usually exists in our world, I would like to share the following letter that recently came across my desk. It wasn't written to me, but I found it interesting. I hope you do, too.

*I WOULD ALLOW YOU TO VIEW MY CURRENT HOUSE TO HELP YOU UNDERSTAND AND AVOID THE PROBLEMS THAT I AM REFERRING TO, BUT I AM AFRAID THAT IT MAY INTERFERE WITH YOUR CREATIVE ABILITIES ...*

Dear Mr. Architect,

Please design and build me a house. I am not quite sure of what I need or want in a house, so you should use your discretion.

My new house should have between two and 45 bedrooms. Just make sure the plans are such that bedrooms can be easily added or eliminated. When you bring the blueprints to me, I will make the final decision of what I want. Also, bring me the cost breakdown for each configuration so that I can arbitrarily pick one.



Keep in mind that the house I ultimately choose must cost less than the one in which I currently reside. Make sure, however, that you correct all the deficiencies that exist in my current home. I would allow you to view my current house to help you understand and avoid the problems that I am referring to, but I am afraid that it may interfere with your creative abilities.

Also keep in mind as you design this house that I wish to keep yearly maintenance costs as low as possible. This should mean the incorporation of the latest technological advancements in siding and insulation. If you choose not to specify aluminum siding, be prepared to explain in detail.

Please make sure that modern design practices and the latest materials are used in constructing the house. The house should be very nice. However, be alerted that the kitchen should be designed to accommodate my 1952 Gibson refrigerator and any other items with which we don't wish to part.

To assure that you are building the correct house for my family, make sure that you contact each of my children and in-laws. My mother-in-law will have very strong feelings about how the house ought to be designed since she visits us at least once a year. Make sure that you weigh carefully all suggestions made by family members and make the right decisions. I, however, retain the right to override any decision you make.

Please don't bother me with details right now. Your job is to develop the overall plans for this house. Get the big picture. It is not appropriate at this time to be choosing such things as the color of the carpet, although you should keep in mind that my wife likes green.

Also, do not worry at this time about acquiring the resources needed to build this house. Your first priority is to develop detailed plans and specifications. However, once I accept the plans, I will expect to have the house under roof within 48 hours.

While you are designing this house specifically for me, keep in mind that sooner or later I will probably sell the house. It

should appeal to the largest number of potential buyers. Please make sure, before you finalize the plans, that there is a consensus of the population in my area as to the desirability of the features included in the house.

You are advised to look at my neighbor's house, which he constructed last year. We like it a great deal because it has many features that we would like to have in our new home, particularly the 75-foot swimming pool. With careful engineering I believe that you can design this into our new house without impacting the construction cost.

Please prepare a complete set of blueprints. It is not necessary at this time to do the real design since these blueprints will be used only for construction bids. Please be advised, though, that any resulting increase in the cost caused by future design changes will result in your getting your hands slapped.

You must be thrilled to be working on such an interesting project such as this. To be able to use new kinds of construction and to be given such freedom in design is something that doesn't happen very often. Contact me as soon as possible with your design ideas. I am most enthusiastic in seeing what you develop.

Sincerely,  
Prospective Client

P.S.: My wife has just told me that she disagrees with many of the instructions that I have given you in this letter. As the architect, it is your responsibility to resolve these issues. I have tried in the past and have been unable to accomplish this. If you can't handle this, I'll have to look for a new architect.

P.P.S.: Perhaps what I need is not a house at all, but rather, a travel trailer. Please advise me as early as possible if this is the case.

---

Now I that I have had time to think about it, I must admit that I really enjoy my work. Everything depends upon your perspective—if you look for the humor in your occupation, things never get too dull.

•AC•



# Lauren in Disguise

by Merrill Callaway

**W**hy is it that originality frequently comes to us entirely by accident? How is it that we suddenly make creative discoveries in areas we weren't thinking about to begin with? Well, late one night it happened to me. One thing I have to say: When I am using a program as thoroughly cool as DeluxePaint III, good things always seem to happen with my creative juices! But while performing some otherwise mundane chores on this particular night, I accidentally discovered something I previously thought impossible to do with DeluxePaint III: load HAM pictures! At first I thought I was hallucinating, but no, there it was, in lo-res yet! The product of my discovery even looked like little Lauren, star of the famous demo used by NewTek to sell Digi-Paint, Deluxe-Paint III's arch rival.

*It was now very late  
and I was not too alert,  
as my journey into  
the stark world of  
"computing noir"  
began ...*

Being a relative newcomer to the Amiga, I haven't yet purchased all the paint software I want. If I had known that little Lauren was a HAM, I never would have tried this! I got my copy of Lauren in Thinker, a Hypertext program for idea processing. Well, the idea of processing Lauren in uncharted territory appealed to my sense of adventure, so here begins my account of "Lauren in Disguise (with pixels)", a journey into the stark world of "computing noir"...

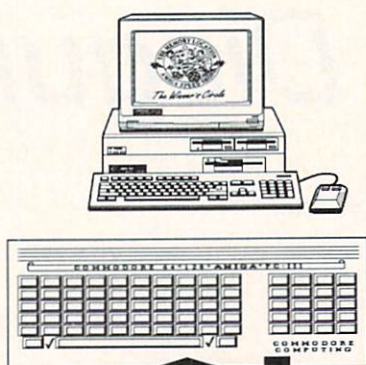
It was a dark and stormy night. I needed a face picture for an icon I was building for a program called (appropriately enough) "face". I couldn't face the possibility of actually drawing a face, because I'd been drawing blanks all evening. Making a face, I remembered that my Thinker program had two included picture demos to show that it can load pictures with the text it processes, and also that my Icon Master program can import picture files to be made into icons. The menu said it wanted to load brushes from which to construct icons, and I took this to mean it did not accept entire pictures. At that point, I was not sure whether it was true that brushes have a different format than pictures, or



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just that they are usually smaller in size, and would therefore fit the icon size better.

I can spare you many of the details of working with the Icon Master program. However, the upshot was that I began to load pictures into DeluxePaint III and to extract brushes from parts of the picture, saving them as brushes and then trying them out in the icon editor. One of the Thinker demo pictures worked so well in both DeluxePaint III and in my icon editor that I continued to experiment using the other picture, called "Lauren" (Figure One).

Because of my notion that importing a full-size picture into Icon Master would not succeed (it only takes about a quarter of the screen as its maximum size), I went directly to DeluxePaint III to extract a brush from "Lauren". I tried to load "Lauren" into the DeluxePaint III program and received a reply to the effect, "Sorry, cannot load a HAM picture".

It was now very late and I was not too alert. I must only have been capable of thinking this one thought—"brush"—because I went, "Oh, yeah!" and proceeded to load "Lauren" as a brush! Yes, using the ordinary load brush menu, and naming the HAM file "Lauren" as my brush, she loaded! The default palette was on and she looked very '60s psychedelic. But she *was* loaded! Lauren wasn't supposed to be there at all but she was!

Suddenly, I was wide awake. During the previous six months, I'd read every article I could find about DeluxePaint III, and every one had said, "Too bad about DeluxePaint III. It won't accept HAM". I knew that programs existed that would convert from HAM to standard IFF by stripping colors, but to my knowledge no one else knew that DeluxePaint III by itself could accept HAM pictures. What follows are some of my repeatable experiments with this "back door" to HAM in DeluxePaint III, as well as some of my pictures that are not necessarily repeatable, but do exhibit some of the potential.

One of the first things I noticed was the psychedelic color effects produced by the default palette. My first experiment was to change the color to the brush palette. I was impressed that it came out looking like a tinted, grainy black-and-white photograph with a few white pixels standing out sharply. I asked myself, "Can this be fixed?" I knew that for this method to represent more than a mere fluke in which only a very poor and unrecognizable image is produced, there had to be a way to make the image at least recognizable. Of course, I did not expect Lauren to ever look as realistic as she does in a true HAM rendition, but I figured that if there were usable images to be realized for artistic purposes, this was clearly worth exploring.

The following is a sort of tutorial meant not to give you a finished picture, but to give you a door through which to proceed on your own. After all, if I do everything for you, it isn't art, is it? Anyway, I couldn't possibly remember or document what I did and still create, too. Perhaps DeluxePaint IV will have a macro memory for recalling the sorts of things I did! Meanwhile, I have frequently found that going without the manual and any preconceived notions noticeably stimulates creativity. That is why I like DeluxePaint III so much: I can make interesting pictures without the manual and precise pictures with the manual. Most of the time I prefer to explore and discover, but at the same time it is good to know a few departure points.

All of the pictures you see here derive from the original HAM picture of Lauren, which was created with Digi-View, and were processed solely with DeluxePaint III, which is not supposed to be able to process HAM at all!

### PROCEDURE A

"Lr32dp" (Figure Two) is an IFF file from DPaint III using lo-res, 32 colors in the default palette. It is a picture loaded originally as a BRUSH. In DPaint III, with a blank screen, set up as above, load the HAM file "Lauren" (or some other HAM picture) exactly as if it were a brush. Use the "Load Brush" menu. You cannot load "Lauren" or any other HAM file as a picture; you will get that "Sorry, unable to load a HAM picture" message mentioned earlier. Make no changes to the picture; it comes in as a screen-sized brush. Stamp it down once by clicking once with the left mouse button. Toggle off the menu/toolbox with key [F10] before stamping the brush down, and the picture can be saved as you see it.

### PROCEDURE B

"Lr32dpS" (Figure Three) follows Procedure A above exactly. Now change the mode in DPaint III to "SMOOTH".





Figure One



Figure Two



Figure Three



Figure Four

You can use the menu bar or key [F8] to go into "SMOOTH" mode. Get rid of the menu/toolbox (press [F10] key). The BRUSH, which is still active and looks like a screen sized opaque rectangle moving with the cursor, is stamped down once over the entire image (by clicking once with the left mouse button). After a fairly long wait, the picture comes back as you see it and can be saved. Remember, if you lose the screen-sized brush you can get it back (provided you haven't made another custom brush!) by pressing Shift-[B] key, or clicking the right mouse button on the brush tool in the toolbox.

Note how the colors are smoothed out in a softer focus. Each time you smooth, the colors "run" a bit more, but they seem to reach a limit after about ten or so iterations (shortly, you will see that the basis for the experimental pictures in Figure Six, Figure Seven, and Figure Eight was to smooth repeatedly with a much smaller round brush). Try repeatedly smoothing locally with a round brush in one place, and then press [Tab] key to color cycle.

### PROCEDURE C

"Lr32bp" (Figure Four) is a procedure that is done the same as Procedure A above, except that the colors are changed to "Use Brush Palette" via the Menu. Change the colors before you stamp the brush down or make the menu bar

disappear. All settings of the screen and number of colors are the "default" settings as the program starts up: lo-res, 32 colors, etc. exactly as in Procedure A.

Note that this is the "best estimate" DeluxePaint III can make of the way a HAM picture should look. This is the result of its internal algorithm which reduces the number of colors in the brush palette to match the number of colors in the window palette (as noted near the end of this article, a reference in the DeluxePaint III manual covers this).

As an exercise for the reader, note what happens when you remap the colors in various ways using the remap command in DeluxePaint III. How about the background to foreground and BG <-> FG effects? There are many exciting possibilities here! One of the neat things about HAM is that it deals with adjacent pixels and their values in that any given pixel is a function in the mathematical sense of its adjacent pixels. In trying to estimate the correct colors, DeluxePaint III "absorbs" this function in some way, as is apparent in the fantastic but orderly way it color cycles its estimated HAM picture. The visible results are the contour mapped, halo effects you see in the default palette and the "hair on fire" effects with color cycling. Another exercise: Play with the palette directly and expand or contract the color cycles and change the speed of them.





Figure Five

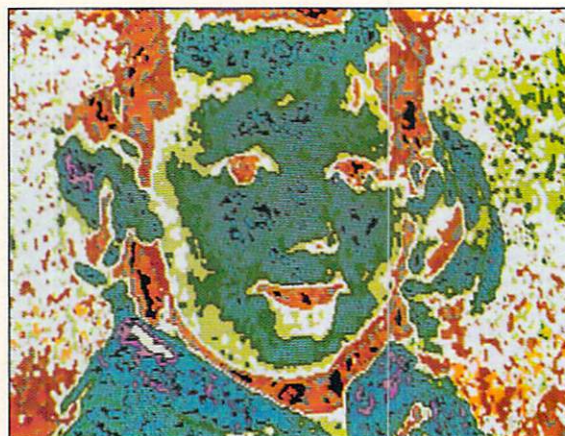


Figure Six



Figure Seven

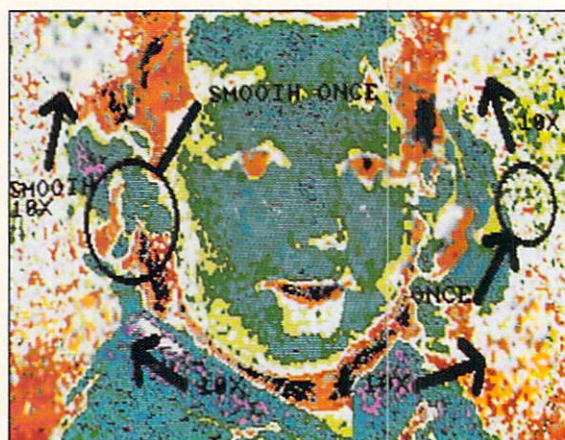


Figure Eight

## PROCEDURE D

"Lr32bps" (Figure Five) is the product of a procedure identical to Procedure B above, except that the colors have been changed to "Use Brush Palette" via the Menu. Change the colors before you stamp the brush down or make the menu bar disappear. All settings of the screen and number of colors are the "default" settings as the program starts up: lores, 32 colors, etc. exactly as in Procedure B. Now do a "SMOOTH" also identical to that in Procedure B.

This is the best realism I can get without invoking a major effort. It is recognizable and even has the sepia-print romance of an old-time photograph. It's not a substitute for a realistic HAM image if that is what you need. It may serve in certain noncritical publishing situations in which using a regular HAM image is a hassle. Anyway, this is not the effect I am excited about. I show it because it's the point from which I started my exploration.

Playing around some more, I discovered that the "SMOOTH" mode ([F8] key or menu) and a large round brush got rid of the harsh and grainy nature of the picture, making it a sort of soft focus, tinted black-and-white photo. I noticed that shifting back and forth between the default palette and the brush palette and smoothing in between shifts made for interesting results. Figure Six shows

"Laurensmooth", a picture done by loading the HAM picture "Lauren" with the default palette as in Procedure A. Then I put the picture into "SMOOTH" mode, as in Procedure B. Instead of using a screen-sized brush, I selected a large round brush by clicking with the right mouse button on the largest round brush in the toolbox and then when the "size" word was attached to the brush, I held down the left mouse button and dragged the brush to about the size of a quarter dollar. I stamped this "smoothing brush" all over the picture, and in some places I smoothed repeatedly. The more you smooth, the more "runny" the colors become. Unlike the first four examples, this picture is not a repeatable experiment, but it serves to illustrate the sort of "contour map" effect that repeated smoothing seems to have on the picture. This image was used in the next experiment, involving the picture "Lr32exp" (Figure Seven).

"Lr32exp" was done by opening DPaint III and loading the previous "Laurensmooth" (you can load a picture you've made by repeatedly smoothing with round brush). I "fixed" the background using the Effect Menu, then loaded the picture "Lr32DpS" (Figure Three) over this fixed background. I made up a medium-sized round brush about as big as a dime and using the right mouse button, "erased" parts of the foreground to reveal the background. The slight offset be-



tween the background and the foreground, and the fact that the background was repeatedly "smoothed" and the foreground was not, led to the strange effects seen. Make sure to color cycle (press [Tab] key) yours!

"Lr32exp2" (Figure Eight) was done by opening DPaint III and loading "Lauren" as a brush. I changed to the Brush Palette with the menu and then I stamped it down once by clicking the left mouse button. Then I pressed [F8] to implement "SMOOTH" mode. I smoothed the picture once with the screen-sized brush. Then I changed to Default Palette and began to smooth with a large round brush (click on the largest round brush in the toolbox and then drag the size larger by holding down the left mouse button, until the brush gets as big as a quarter). I have labeled some of the places that I repeatedly "SMOOTHED" the picture. I kept the brush in one place and clicked the left mouse button ten or more times and noted that the colors ran together more and more each time, until some sort of a limit was reached, at which point fewer and fewer changes took place. The interesting thing was that these "smoothed" circles seemed to rearrange the adjacent colors so that they cycled in a different order from the surrounding area. The "smoothed" circles really stand out when you cycle them (press [Tab] key).

Finally, we come to the last question: What happened? On my part, it was a happy combination of accidents. I found out later that my Icon Master program will accept full-sized pictures; it merely lops off whatever is left over or doesn't fit its space. Its menu requests Brushes as sort of a hint that it wants smaller than full-screen images, but it isn't legalistic about it (i.e., you can load anything). If I had not been thinking "Brush" so hard, I never would have attempted to try what I did. But the really interesting question is: Why did DeluxePaint III accept little Lauren?

I had a look through the manual and found an answer: "When you load a brush from disk, DeluxePaint III continues to use the current picture palette, even though it may be different from the one the brush was created with. Use Brush Palette switches to the brush palette, and includes any information about color cycling that was saved with the brush. If the newly loaded brush uses [a greater number of] colors than the current picture, Use Brush Palette switches to the brush palette and reduces the number of colors to that of the picture palette. It does so by recomputing the palette to match the original as closely as possible with fewer colors (DeluxePaint III Manual, page 187)."

The HAM format uses 4096 colors and clearly, DeluxePaint III cannot handle that many. But someone built in a pretty good conversion utility, perhaps without even knowing it!

I believe that if you want to have realism in HAM mode, you should buy Digi-Paint. I certainly will. But personally, I feel that the odd results of this serendipity are much more interesting than mere realism, notwithstanding the technical difficulties of rendering a realistic image.

These images remind me of the multicolored halos of Louis Wain's cats. He was the English artist obsessed with drawing felines, and the author of the fairy tale "Puss in Boots". In his later life, when most people thought he was crazy and he was committed to an insane asylum, he produced a fascinating series of cat pictures: electric, brooding



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cats, surrounded by contours and halos of brilliant colors, each drawing becoming more an abstraction and less a cat, melting into pure energy. It was alleged that he thought people were controlling his mind with electrical apparatus. Psychological specialists have since used his drawings as an example of the manifestation of a disintegrating personality. I saw a show of Louis Wain's original drawings in York, England and ever since have felt that he wasn't crazy at all, but someone simply out of his time.

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# CREATIVE AND TIME-SAVING TECHNIQUES

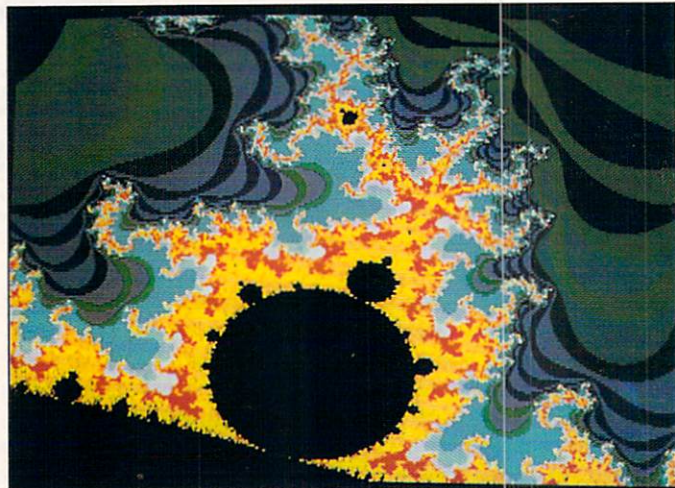
PEOPLE OFTEN ASK ME, "If it is true that a fractal is based on some mathematical equation, then shouldn't each fractal have a certain predetermined appearance based on that equation? How then is it possible to design your own without perhaps modifying that equation?"

It is correct to expect an equation to always have the same numerical solution given the same initial conditions. The Mandelbrot equation is no different in that regard. Feed it the same pair of numbers representing the coordinates of a certain pixel along with the same values of  $M$  and  $Crunch$  (variables used in the equation), and it will feed back the same value for  $k$  every time,  $k$  being the speed of expansion or escape velocity of the equation (see Article V, June 1990). Yet the appearance of these fractals is not fixed. There is much you can do to modify and hence personalize them. The secret is in the definition of different colors and, more importantly, in the association of those colors with various values of  $k$ .

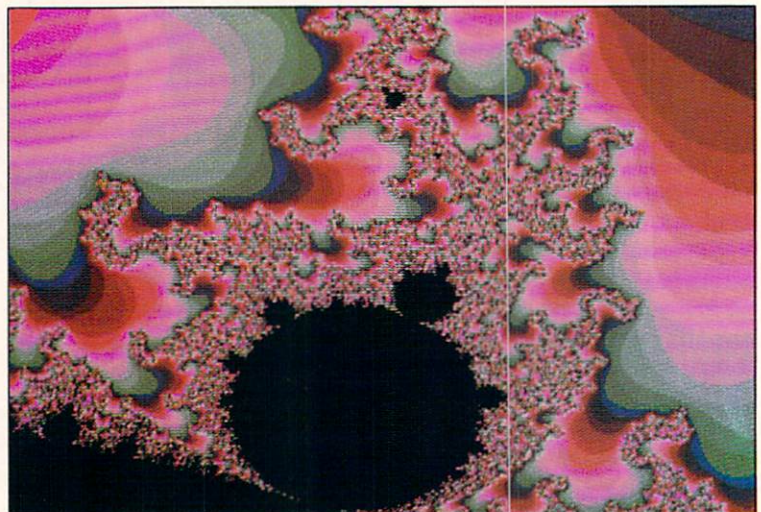
---

BY

PAUL CASTONGUAY



left:  
Figure One,  
a well-  
defined  
image.



below:  
Figure Two,  
a "noisy"  
image.



## CHOOSING COLORS IN A FRACTAL

The escape velocity ( $k$ ) can have any value between 1 and some high value like 500, 800, or even higher, as determined by the variable Crunch. You are free to change that value, and you will want to do so for different magnifications. But you have only 16 color registers at your disposal (32 in low resolution). Sorry, you cannot have 500 different colors — not unless you use programming techniques that are beyond the level of these articles.

So how do you associate a limited number of colors with so many different escape velocities? Let's take a look once again at the listing from the example program of Article III (October 1989), particularly the Select.Color subroutine which is reproduced below. The corresponding image appears in this article as Figure One.

```
Select.Color:
  IF k = Crunch THEN
    COLOR 15
  ELSEIF k>200 THEN
    COLOR 14
  ELSEIF k>130 THEN
    COLOR 13
  ELSEIF k>73 THEN
    COLOR 12
  ELSEIF k>50 THEN
    COLOR 11
  ELSEIF k>44 THEN
    COLOR 10
  ELSEIF k>39 THEN
    COLOR 9
  ELSEIF k>30 THEN
    COLOR 8
  ELSEIF k=29 OR k=27 THEN
    COLOR 7
  ELSEIF k=28 THEN
    COLOR 6
  ELSEIF k=25 OR k=23 OR k=21 THEN
    COLOR 5
  ELSEIF k=26 OR k=24 OR k=22 THEN
    COLOR 4
  ELSEIF k=19 OR k=17 THEN
    COLOR 3
  ELSEIF k=20 THEN
    COLOR 2
  ELSEIF k MOD 2 = 0 THEN
    COLOR 1
  ELSEIF k MOD 2 = 1 THEN
    COLOR 0
  ELSE
    COLOR 0
  END IF
RETURN
```

Notice how certain values of  $k$  are associated with particular color registers. Here lies the secret of producing the picture. The first conditional statement (IF statement) associates the highest possible value of  $k$  (the value stored in the variable Crunch) with the color register 15, which I have

chosen to be black. Recall that this value of  $k$  occurs when the equation is *not* expanding, when it is converging to some low value. Such points have Cartesian coordinates which lie within the Mandelbrot set and are represented by the black, lower left area of the picture. The second line associates all values of  $k$  which are greater than 200 with color register 14, which I have chosen to be yellow.

Now since  $k$  has already been tested for 800, this line causes all  $k$  values between 201 and 799 — a range of 599 — to be associated with that register. All pixels whose coordinates produce (when processed by the Calculate routine) an escape velocity in that range will be illuminated yellow. You might ask, "Isn't that a very wide range for just one color register? You'll see the rationale in a minute. The next logic statement associates  $k$  values from 131 through 200 — a range of only 69 — with color register 13. Following that are ranges of 56, 22, 6, etc. As the values of  $k$  become smaller I separate them into groups whose ranges are increasingly more narrow.

We are now onto something that will help you appreciate the value of writing your own programs for generating fractals. Each different value of  $k$  represents a band of color that surrounds the Mandelbrot set, and for higher values the corresponding bands become more and more narrow. Eventually they become so crowded and squashed up against each other that you can't tell them apart. Neither can your computer, since its screen has limited resolution.

As a result, if you were to use a different color for each value of  $k$  you would get a crowded mess of random colors. Figure Two shows such an image. It was produced using the exact same coordinates as Figure One, only during its calculation a different color register was associated with each increasing value of  $k$ . Naturally, because there are a limited number of registers on the Amiga, I had to repeat register assignments. I did so in multiples of 15. For example, I associated  $k$  values from 0 to 14 to color registers 0 through 14. Then I switched back to register 0, associating  $k$  values from 15 to 29 to registers 0 through 14 respectively. Then again,  $k$  values from 30 to 44 to registers 0 through 14. I continued in that fashion until all values of  $k$  were associated.

## RANGES DEPEND ON K

To produce various artistic effects from the Mandelbrot set you will want your image to consist of clearly defined bands of color, unlike the "random noise" in Figure Two. To do that you must associate not just values of  $k$  but different ranges of values of  $k$  to the various color registers. In general, you will want the highest values to be separated into the widest ranges. In Figure One the yellow region in the flame-like area represents very high  $k$  values whose range is 599. The blue background area represents lower  $k$  values that have a range of only 9.



## DIFFERENT ARTISTIC EFFECTS

In some sections of Figure One several color registers were chosen to work together. For instance, the flame-like appearance was achieved by defining three registers—12, 13, and 14—with closely related shades of red, orange, and yellow, and then associating them with different ranges of  $k$  values. Note that register 14 was actually used twice, for two different ranges.

In other sections of the image registers were associated with different alternately changing  $k$  values. For example,  $k$  values of 22, 24, and 26 were associated with color register 4, whereas the values 21, 23, and 25 were associated with register 5. This important technique produced the pillar and blanket effect around the top and sides of the image. The same technique was used in the example in Article IV (January 1990) to produce a worm-like effect. To produce these effects you must alternate intelligently between registers containing carefully chosen colors.

The modulus operator MOD can sometimes be used to achieve this alternate allocation of color. The modulus of two numbers is the remainder produced when you divide the numbers. Consider the following lines:

```
ELSEIF k MOD 2 = 0 THEN
  COLOR 1
ELSEIF k MOD 2 = 1 THEN
  COLOR 0
```

The expression " $k \text{ MOD } 2$ " means "the remainder after  $k$  is divided by 2". If  $k$  equals 17,  $k$  divided by 2 equals 8 with a remainder of 1. Hence when  $k$  equals 17,  $k \text{ MOD } 2$  equals 1. That happens whenever  $k$  is an odd number. In contrast, when  $k$  equals 16,  $k$  divided by 2 equals 8 with a remainder of 0. In that case  $k \text{ MOD } 2$  equals 0. That happens whenever  $k$  equals an even number. The result of these two lines is that all even values of  $k$  are associated with color register 1, all odd ones with register 0.

It turns out that no single range can satisfy the artistic requirements of all parts of most fractals, especially as you choose coordinates which produce greater and greater magnifications of the Mandelbrot set (see Article II, July 1989). Only by writing your own programs can you have sufficient control over the color register selection in producing pleasing artistic effects. Take a close look at some of the pictures featured in the more recently published books on fractals. You will see clear evidence of planned color coordination. Such pictures are also possible on your own computer when it's you who is writing the program, when it's you in charge of those color range decisions.

## WHERE REGISTERS GET THEIR COLOR

Don't confuse the selection of different color registers with the definition of whatever color each register contains. Associating different ranges of  $k$  with different color registers affects the width of the color bands in a fractal image, but not their actual color.

In my fractal examples I define the actual color that each register contains in the Choose.Color.Numbers subroutine.

In high resolution mode you have 16 color registers and each one can contain a single color chosen from a palette of 4096. Although this may seem a little complicated at first, it is a much better system than that implemented by other computer systems whose color registers contain only fixed, manufacturer-selected colors.

## PUBLIC DOMAIN PROGRAMS

I'm not against using public domain programs. They are great tools. They generate fractals quickly and usually have excellent user interfaces to help locate those areas of the Mandelbrot set that offer interesting artistic possibilities.

And speaking of speed, be aware that many demonstrations of these programs are conducted using such low magnification and number of iterations that the naive beginner is often swayed into thinking that they are faster than is

***MANY DEMONSTRATIONS OF PUBLIC DOMAIN PROGRAMS ARE CONDUCTED USING SUCH LOW MAGNIFICATION AND NUMBER OF ITERATIONS THAT THE BEGINNER IS OFTEN SWAYED INTO THINKING THAT THEY ARE FASTER THAN IS EVEN POSSIBLE.***

even possible. Many default to only 30 iterations. That's peanuts compared to the real calculations that we've been doing here. Article III used 800 iterations. That's 26 times more work for points which lie within the Mandelbrot set. Enter that requirement into any program and watch it slow to a screeching halt.

Sure, BASIC is still slower, but not by as much as you might think. In fact, the time spent calculating a fractal is dependent more upon the speed of the floating point routines (the speed at which the computer performs arithmetic operations on decimal numbers) than it is on the language being used. That's why my C program (using Lattice's standard floating point library) in the first article of this series (March 1989) was only 3.6 times faster than the equivalent AmigaBASIC version, and only 1.3 times faster than the True BASIC one.

In addition, you should never forget that as you magnify the Mandelbrot set more and more, you need more and more mathematical precision to properly calculate the fractal. Be warned that some programming environments achieve their speed at the expense of the accuracy of their floating calculations, often without telling the programmer. That is a very cheap trick indeed and can cause you to lose countless hours as you try to figure out why your fractal programs don't work as expected.

## TIME-SAVING TECHNIQUES

Whenever you save a fractal in IFF format you effectively freeze its allocation of  $k$  values ranges to the way they were defined in your Select.Color subroutine at the time it was calculated. But to create different artistic effects you will want to change those allocations. The solution? Instead of saving the graphic picture as we have been doing thus far,



save the actual k values that represent the picture. After all, if it's true that all the artistic effects you want to experiment with are based on those magic little k values, and if it takes so long for your computer to calculate them, then why not save those values to disk? Then by using a Reader program you can create many different images from the same data, each one representing a different set of k range allocations.

Because the listings are becoming too long for inclusion in the magazine, my programming example this month is given in one language only, True BASIC. However, the corresponding disk available from *Amazing Computing* contains the programs in both AmigaBASIC and True BASIC.

## NO PICTURE ON SCREEN

Listing One is a fractal-generating program but it produces no image on the screen. Instead, it makes a data file containing the calculated escape velocities (k values) of all the points that make up an image. Listing Two is a Reader program that converts that data to an image on the screen according to your specific color and range specifications. The advantage of all this is that the Reader can produce many different images from the same data, each corresponding to different k value ranges, and it can do it in a fraction of the time it took to calculate it. You can then use GRABBIT to capture the image into IFF format, followed by DeluxePaint to make color adjustments.

The Reader program has been designed with ease of use in mind. For instance, your color and range decisions are given not within its program lines, but in separate data files that you create with your editor. You can use your True BASIC or AmigaBASIC editor to do this. This method allows you to easily modify your color and k range decisions. In addition, the *Amazing Computing* disk that includes this article's programs contains a compiled version of the True BASIC Reader program (you don't need the language system to run it), and you can use it to view data files created by either version of the generator program, AmigaBASIC or True BASIC. That's right — even though the number of pixels across the screen is different in both languages, the True BASIC Reader can display images from data files created by either one.

Execution speed of the Reader program has been improved in two ways. First, it relies on a data structure concept called a "hash table" to make color register decisions more quickly than using the usual long series of IF THEN ELSE statements. Second, it makes calls to the Amiga's exec library. More about all this after a short word from Captain Crunch.

## MAXIMUM VALUE OF K

It turns out that as you use more and more magnification on the Mandelbrot set (see Article II) the appearance of the black region begins to degrade, its edges becoming fuzzy. To clean up its appearance you will have to increase the value of Crunch in your generating program. In addition, increasing the magnification affects the average value of k around the edges of your screen. As a result, different fractal images may be made up of completely different ranges of k values. Note that my Reader program lets you use a value of Crunch as high as 2000.

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But how is the beginning hobbyist supposed to deal with all this, especially when calculating a particular fractal for the first time in an unfamiliar section of the Mandelbrot set? This month's fractal-generating program provides a little help in that direction. It reports to you the k values for several pixels at different locations around the screen and then asks you for permission to proceed before starting the long calculation of the entire image. The exact points involved in this preliminary calculation are taken from the four corners of the screen, the middle along each edge, and finally the exact center.

Since Listing One does not produce any graphic output, these k values are simply printed to screen along with the coordinates that produced them. However, the version available on disk actually gives a graphic representation of this process. It displays a small orange dot at the exact position of each pixel along with the message "k = XXX" appearing close to it. This gives you an idea of the spread of k values across your fractal image and a chance to change either the value of Crunch, or the overall coordinates (xmin, xmax, ymin, and ymax) before committing your Amiga to 3 or 4 days of arithmetic. There is nothing more frustrating than waiting 3 days to find out that, due to a poor choice of initial conditions, your fractal turned out to be all one color, a blank screen.



At the same time be careful to not overinterpret the meaning of this information. A small BASIC program cannot be expected to have the analytical power of an expert system, and sending random points to the Mandelbrot equation is a bit like playing Russian Roulette. The particular points reported may not necessarily be representative of the majority of pixels in your image. Still, many times you will find the information helpful.

## YOU NEED A NEW DISK

Before running the program of Listing One you need to format a blank disk and call it "Fractal\_Data:". The program will look specifically for a floppy disk of that VOLUME NAME on which to save the file of calculated k values. I specify a different disk because the file will be very large — 250K for a 200-line picture, 500K for a 400-line picture. If you're not careful, you could exceed the space on your working disk before the calculation is finished. The best security against that is to use a fresh blank disk. There's no problem here if you're using an Amiga 500 with a single drive; your Amiga is smart enough to ask for the proper disk when it is needed. The program reports its progress at all times by displaying the number of lines of graphic data it has produced up to that point, as well as how many remain to be calculated. As in my previous examples, the program may be stopped at any time by pressing the F-10 function key.

## USE TRUE BASIC'S OUTPUT WINDOW

If you select and activate True BASIC's OUTPUT window from the pull-down menu the text output of the fractal generator program will go there, otherwise a full-sized, borderless window will be created for it on the Workbench screen. In either case the program will work just fine, but a full-sized window prevents you from accessing other icons and windows on the Workbench. So if you want to run another program while the fractal generator is executing, it is better to activate the OUTPUT window first. You don't have to expand it; its default size is fine. Also, remember to shrink the size of the EDITOR window (if you have it expanded to full size) before selecting RUN since its size cannot be adjusted once program execution begins.

## HOW DOES IT WORK?

I don't have the space here to discuss all the intricate details of data file programming. These articles are supposed to be about fractals, remember? But let me go through the important points, starting first with Listing One, the fractal generator.

Notice first that the program gives the user a choice of different screen resolutions. The related code is in the subroutine called "Ask\_for\_Resolution". It is there that the important Hor\_Pixels and Ver\_Pixels variables are initialized to whatever resolution the user selects.

The next subroutine, "Open\_File\_for\_Data", uses the following line to ask the user for a file name in which to save the generated data:

```
input prompt "Filename to save data ? " : filename$
```

The file name entered by the user is stored in the variable filename\$. Next, the program opens a data file of that name on a disk whose volume name is "Fractal\_Data:".

```
open #1 : name "Fractal_Data:" & filename$, create newold,  
access      output, organization byte
```

The above must appear all on one long line in the True BASIC editor. I use the BYTE file format in order to achieve compatibility between the two versions of BASIC. At the risk of deviating too much from the subject at hand, let me at least say that the RECORD format (random access) in True BASIC attaches to data files certain information concerning the record size. This feature gives database programmers the convenience of knowing the record size used in a file of data, even if they don't know what program produced it. That's a big advantage when designing such applications, and it would have simplified the design of my Reader program had I used it. However, the resulting files would have been incompatible with AmigaBASIC. I gave that feature up in order to achieve compatibility. Programming is always a compromise.

Even though the file format is BYTE (not RECORD) I will be saving data to disk in fixed amounts, equal in bytes to twice the number of pixels horizontally across the screen. Each k value in a single graphic line will be converted to a two-byte binary form and then inserted into its proper position in a variable representing one entire graphic line. You might wonder why I did not use the easier to understand sequential or TEXT file format, saving k values to disk directly in numeric form. The answer is that the sequential method would have taken up too much room on the disk.

Next comes the usual variable initialization needed to calculate a fractal. This should be fairly familiar to you by now.

## SAVING A DESCRIPTION OF THE FRACTAL

The Save\_Image\_Definition subroutine saves important information about the fractal to be generated. I used the variable Picture\_Data\$ for this work. It was initialized to a length of 1500 characters at the beginning of the program, more than the maximum 1280 that I actually need in high resolution. I use the True BASIC function Packb() to code and insert the data into the Picture\_Data\$ variable:

```
call Packb(Picture_Data$, 1, 16, Hor_Pixels)
```

Here the horizontal resolution selected by the user — either 320 or 640 — is coded into the first 16 bits (two bytes) of the variable. The Packb() routine is a bitwise operator, able to access individual bit positions in very long strings. This feature is really worth showing off. Although AmigaBASIC has the equivalent MKI\$(), called make integer string, it is restricted to the case of two-byte character strings and cannot access individual bits within a byte. As you will see, this function allows for very efficient operation of the Reader program.

Notice the string "escape velocity values". This string is used to identify the type of file. The Reader program will



look for that string in order to protect itself from your accidentally trying to view the wrong type of file. Finally, the data is saved:

```
write #1 : Picture_Data$(1:Hor_Pixels*2)
```

Even though the useful data is only 30 bytes long, I want the data stored in a segment of disk storage equal in length to one line of actual graphic data, 640 bytes for low resolution, 1280 for high. I use True BASIC's substring notation for this. This will simplify the design of the Reader program. It also gives you the opportunity to store more data that you would like to see saved, perhaps the fractal's Cartesian coordinates *xmin*, *xmax*, *ymin*, and *ymax*.

The operation of the *Calculate\_Initial\_Values* routine is straightforward. It selects nine different points around the screen, reports their escape velocity values, and then asks the user for permission to continue with the calculation.

The fractal-generating loop has changed a bit from previous articles, it no longer calls the *Select\_Color* subroutine. This program is calculating only escape values; no color decisions are needed. Notice how the variable *Pixel* keeps track of where to pack data in the *Picture\_Data\$* variable as the value of *i* increments from *xmin* to *xmax+dx/2* in steps of *dx*. The *Packb()* routine is used to simultaneously code *k* values into two-byte binary values and pack them into position.

```
call Packb(Picture_Data$, Pixel*16-15, 16, k)
```

Finally, the correct number of bytes are written to disk. And that's it. You see, it's only a slight modification of my previous fractal programs. When the fractal calculation is finally finished, the program automatically stops.

## THE READER PROGRAM

Until now all my program examples have been written using a structured, high-level approach which helps in understanding a program's underlying operation. But a Reader program written that way, using the *PLOT POINTS* instruction for every pixel, would be too slow, taking about 20 minutes to display a high-resolution image. Although that's a lot faster than the hours it took to calculate the fractal's data file, it's still not fast enough. So I designed the Reader for better execution speed. The resulting program (Listing Two) can display a low-resolution image from its data file of *k* values in just under 3 minutes, 5 minutes for a high-resolution one. The one disadvantage is that the program is more machine-dependent, and therefore more difficult to understand.

To begin with, the program uses a function in the Amiga's *exec* library. Now most people claim that True BASIC cannot do this, but access to the system is provided in True BASIC through a product called the "DEVELOPERS TOOLKIT". Yes, True BASIC is a transportable language between four different microcomputers (Amiga, Apple Macintosh, IBM-PC, and Atari-ST), but it can also take advantage of each one's specific hardware.

The Amiga Toolkit provides support not only for all the standard Amiga system libraries (Intuition, graphics, *exec*, etc.), but also for a special series of libraries that make using some of the Amiga's features a whole lot easier. There is, for instance, an animation library which allows you to create fast, smooth sprite motion with easy, high-level instructions (not slow and jerky like in AmigaBASIC).

The very beginning of the listing makes reference to the libraries used in the program, like *AmigaLib\**, *hex\**, and *amiga\**, which are custom libraries written by True BASIC, as well as the familiar *exec\**. Following that is the usual list of function declarations (subroutines don't require declaration). *CurrentRPort* is equivalent to AmigaBASIC's *WINDOW(8)*, which returns a pointer needed to use many of the Amiga's graphic functions. I use it in my program to locate the address of screen memory. *CopyMem* is an Amiga *exec* function which I use to copy graphic data directly to screen memory.

Now let me say a bit more about this hash table concept. The idea is to create a very long array — 2000 elements long — in which the position of each element corresponds to a *k* value and the contents of each element to the color register that I want associated with that *k* value. For instance, elements 42 through 51 might contain the integer 12. That would cause the program to use color register 12 whenever *k* had a value in that range. Accessing register numbers through a hash table is much faster than using the normal long list of *IF THEN ELSE* instructions. Actually, my program is a bit more complicated than that in that it uses 5 separate hash table arrays, one for each color bitplane in memory. Each element of each array stores either a 1 or a 0 and together they define the register desired for a particular *k* value. But let me first explain how to use the program.

## MAKING COLOR DECISIONS

Your color definitions are entered not within the program lines of the Reader program, but in a separate data file that you create with your *EDITOR*. It is an ASCII file or, in database programming parlance, a sequential file. Numbers representing a color register and its desired primary color intensities are written on a single line separated by commas. Here is the color definition file used to recreate the fractal of Article III:

```
color data file
0, 2, 0, 4
1, 5, 7, 3
2, 3, 5, 0
3, 4, 6, 7
4, 0, 2, 5
5, 6, 6, 9
6, 3, 8, 0
7, 7, 6, 9
8, 0, 8, 5
9, 0, 14, 14
10, 8, 13, 13
11, 13, 12, 14
12, 15, 0, 0
13, 15, 7, 0
14, 15, 14, 0
15, 0, 0, 0
```

➔



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The first entry is the words "color data file". The reader will look for these exact words (in lower-case letters) to verify that it is reading the correct type of file. Then, each line lists a color register followed by its intensity values (red, green, blue), exactly as they appeared in the Choose\_Color\_Numbers of Article III. Numbers are separated by commas; spaces are added for appearance.

Next comes the range definition file, reflecting the same range decisions that were made in the Select\_Color subroutine of Article III.

```
range data file
0,      1
1,      0
2,      1
3,      0
4,      1
5,      0
6,      1
7,      0
8,      1
9,      0
10,     1
11,     0
12,     1
13,     0
14,     1
15,     0
16,     1
17,     3
18,     1
19,     3
20,     2
21,     5
22,     4
23,     5
24,     4
25,     5
26,     4
27,     7
28,     6
29,     7
30,     8
39,     9
44,    10
50,    11
73,    12
130,   14
200,   13
799,   14
800,   15
```

Each line contains a k value followed by a color register number. K values must be listed in increasing order. A comparison of the above list to the original Select\_Color subroutine (reproduced at the beginning of this article) will make clear how the program interprets this data. It starts by reading a k value and register number. Then it associates that register number to all hash table positions starting at 0 and ending at whatever k value it just read. In the above list the first line tells it to associate color register 1 to all positions starting at 0 and ending at 0. Result? The zero'th position is associated with register number 1, a range of only 1. Near the end of the list the program associates register number 14 to all positions starting at 201 and ending at 799.

Save these two files, using any names you wish, in the same directory as your calculated fractal file (on the Fractal\_Data: disk) along with an executable copy of the Reader program. Now fire up the Reader program. You will

be presented with a dialog box asking you to enter the VOLUME NAME "Fractal\_Data:" (if it does not already appear), then select a data file produced by the generator program. Following that, another dialog box will ask you to select a color definition file. Finally, a third box will ask you to select a range data file. The program reports the data contained in all these files before continuing. This helps if you have created several color and range files, each one producing a different image from the same data.

The Reader program also has some helpful protection built in. For instance, if you accidentally select the wrong type of file, it reports your error. It also warns you if there are differences between the maximum number of registers and colors in the fractal data file and the number defined in your data files. But this Reader program should not be viewed as a marketable piece of software. It is still, after all, a programming example in an instructional article.

## THE PROGRAM ITSELF

The code which calls up the dialog box is in the subroutine Get\_Fractal\_File:

```
let filename$ = GetFile$(148, 64, type$, button$)
```

Pretty simple, eh? Also within that subroutine is an instruction to measure the length of the file in bytes:

```
ask #1 : Length_in_Bytes
```

The Get\_Image\_Information subroutine is responsible for reading the first string of data in the file and extracting such things as the size of the image (Hor\_Raster and Ver\_Raster) and calculating the length of a single line of graphic data (the variable Record\_Size). Finally, the file pointer is moved to the beginning to the first line of graphic data. Change this line if you modify the generator to save more than 30 bytes:

```
read #1 : bytes Record_Size - 30
```

The Get\_Color\_Information subroutine reads its data and saves it in a two-dimensional numeric array called Intensity (31,2). Note the instruction at the beginning of the program:

```
option base 0
```

which causes all arrays to have a zero'th first element. The Get\_Range\_Information places its data into the array called Range (100,2).

The Init\_Hash subroutine has the important job of loading the correct register numbers into the proper positions of the hash table arrays. First, each register number is broken down into its binary parts. Then each bit is placed in a separate hash table array, each one representing a different bitplane of screen memory. Each element of each array represents a single bit in one of the screen's bitplanes and will



contain either a 1 or a 0. I "dimensioned" the hash table arrays to contain 2000 elements. You can use more if you want your generator program to calculate fractals with a Crunch value greater than 2000. This is, of course, very wasteful of memory, but that is of no concern. The idea of a hash table is not to store data efficiently, but to store it in such a way that it can be retrieved very quickly.

The `Pick_Display` opens a screen and full-sized, borderless window for whatever resolution the fractal was calculated in. For example, high resolution is obtained using the following instruction:

```
set mode "HIGH16"
```

The instruction:

```
window xmin, xmax, ymin, ymax
```

scales the screen to the number of pixels in whatever resolution was opened.

And now comes the real system-dependent part. The `RastPort` address is obtained using the `CurrentRPort` function and the beginning addresses of each bitplane are located by `PEEKing` into the system.

```
for i = 0 to 7
    PeekL(PeekL(RP+4) + 8 + 4*i)
next i
```

The address of the zero'th bitplane is stored 8 bytes past the beginning of the `BitMap` structure, and the address of the `BitMap` structure is stored 4 bytes past the beginning of the `RastPort` structure. You find these things out by studying the `LatticeC` header file definitions. Aren't you glad you program in BASIC? The next bitplane address is stored 4 bytes later.

The program then initializes 5 string variables — `Plane_0$` through `Plane_4$` — each one representing a single bitplane line of graphic data.

Graphic data is read line by line from the data file:

```
read #1, bytes Record_Size : graphic_line$
```

Then a loop is entered where `i` increments from 1 to the number of pixels across the raster, 320 or 640. For each pixel a value of `k` is decoded from its corresponding position in `graphic_line$`.

```
let k = Unpackb(graphic_line$, 1+16*(i-1), 16)
```

The `Unpack()` operation jumps along the variable in increments of 16, the bit length of a single `k` value (two bytes). Then the values that are stored at the `k`'th position of the hash table arrays are copied into the `i`'th bit position of the plane variables `Plane_0$` through `Plane_5$`. What is being copied here are 1's and 0's into bit positions, corresponding to whether or not that bitplane bit requires illumination to produce the desired color.

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```
call Packb(Plane_0$, i, 1, color_Hash_Table_0(k))
```

Without this ability of True BASIC to insert a 1 or a 0 into the bit positions of a long string I would have to collect these bit values into groups of 8, build up a corresponding byte by multiplying the first bit by 128, the second by 64, the third by 32, etc., convert their combination to single-byte binary form by using `CHR$( )`, and finally position each byte into the bitplane strings using substring notation or concatenation. Whew! All that processing would slow the program right back down to about 20-minutes execution time again.

AmigaBASIC has no equivalent to `Packb()` and for that reason there would be little advantage to using my present approach for writing the Reader program in that language. The AmigaBASIC version of the Reader (available on disk from *Amazing Computing*) therefore uses my usual high-level approach, reading `k` values from the data file, selecting colors using the usual `IF-THEN-ELSE` instructions, and illuminating pixels using the `PSET` instruction. Execution time is about 30 minutes for a high-resolution image.

At the end of each graphic line, after all the `k` values have been hashed into bit values for each color plane variable, the entire line is copied — one bitplane variable at a time



**ONE OF THE MOST EXCITING POWERS OF DELUXEPAINT III IS ITS ABILITY TO ANIMATE FRAMES. THIS FEATURE, COMBINED WITH THE TECHNIQUES DESCRIBED IN THIS ARTICLE, MAKE IT PRACTICAL TO CREATE SOME VERY IMPRESSIVE FRACTAL ANIMATIONS.**

— into screen memory using the Amiga exec function CopyMem(). If you want to compile my source code yourself (possibly because you want to improve the program), you will need the Toolkit accessory from True BASIC, and you will also have to update your exec\* library.

The version you receive when you buy the Toolkit is old and does not contain the CopyMem function. If you try it you will get a "function not found" error. No problem! There is a program on the Toolkit disk made especially for this. Called GenLib, it is similar in purpose to the AmigaBASIC ConvertFD program. Use it to read the exec\_lib.fd file from your Extras disk and create a new, up-to-date version of exec on your Toolkit. But don't forget to cut the hand-inserted part from the end of the old version (Toolkit:Primary sources/exec) and paste it into the new one created by the GenLib program. Your documentation explains this. Finally, compile the exec file producing exec\* and copy it into your Toolkit:Libs directory, overwriting the old one.

This Reader program is a clear demonstration of the power that can be realized by using True BASIC while still remaining within a high-level language.

## ENTERING FRACTAL COORDINATES

Many people ask me why I do not design my example programs to include INPUT instructions, allowing the user to enter the fractal coordinates (xmin through ymax), or perhaps the same information in the form of a single coordinate pair representing the center of the screen followed by a magnification number. That's a good idea, but I prefer to enter them myself from inside the program lines, the reason being that my programs are intended not as self-standing applications but as instructional examples. My hobby is programming and my examples are written for people who like to fool around with programs, not just drive those written by others.

In addition, BASIC is an interactive environment which was designed to make such program line modification easy, not like C where every such change would require firing up the compiler and linker again. Writing assignment instructions within a program simplifies its design and allows me to get on with the business of drawing fractals, rather than designing quality user-entry routines. Naturally, I encourage you to make such improvements yourself.

In my listings, the coordinates entered in the fractal generator program are the same as those of Article III. I did that to allow you to try your hand at modifying a familiar image. Change the numbers in the color definition and range files and watch the results. Use GRABBIT to capture your images to IFF format and DeluxePaint to play with the colors.

You should, of course, change the assignments of xmin through ymax and generate new fractal data files at the coordinates of your choice. For an image of the complete Mandelbrot (magnification = 1) use:

```
xmin = -2.4
xmax = 0.8
ymin = -1.2
ymax = 1.2
```

As you magnify the image you should try to keep the aspect ratio at .75 (ratio of vertical to horizontal coordinates). Otherwise your image will begin to look compressed in one direction.

$$\text{Aspect Ratio} = \frac{(ymax-ymin)}{(xmax-xmin)} = 0.75$$

## DELUXEPAINT ANIMATIONS

One of the most exciting powers of DeluxePaint III is its ability to animate frames. This feature, combined with the techniques described in this article, make it practical to create some very impressive fractal animations. Simply make several fractal frames from the same data file, each one differing slightly in color and/or range specification. For example, I created a 27-frame animation which runs on my 2 MB Amiga and in which the yellow flame area of Figure One dances about as if it were comprised of real flames. The amazing part is that it was all created from the same single data file of escape velocities.

## IN CONCLUSION

In these articles I have tried to develop the theme that real experimentation, in the spirit of Thomas Edison and Alexander Graham Bell, can indeed be enjoyed on any home computer by anyone, regardless of education. I hope you don't just enter and run my program examples, but that you modify them, searching through the many unexplored regions of the Mandelbrot set yourself. I encourage wild and radical techniques. Go ahead, muck up the Mandelbrot equations. He'll never know...or will he? You may discover something new and become famous.

I am very appreciative to *Amazing Computing* for devoting so much space to the subject of fractals, one of the most exciting areas of computer science today. A presentation and explanation of the subject, I felt, was sorely needed. I therefore hope this series has provided for you a gateway to this extraordinary area of study, access to which has previously been restricted by complexity and technical mumbo-jumbo.

*Questions and/or comments regarding this series may be sent to Mr. Castonguay in care of Amazing Computing.*



# LISTING ONE: Fractal Generator Program

```

!
! *****
! *
! *
! *          FRACTAL GENERATOR_TB
! *
! *
! *          Program to generate escape velocities for a fractal
! *
! *          and save them in a data file.
! *
! *          (no graphic image is produced)
! *
! *
! *          ACTIVATE TRUE BASIC'S OUTPUT WINDOW BEFORE RUNNING
! *
! *
! *          Paul Castonguay                      Oct 14,
1990 *
! *****

let Picture_Data$ = ""
let Picture_Data$ = Repeat$(" ", 1500)

call Ask_for_Resolution

call Open_File_for_Data

let xmin = -.9505
let xmax = -.8825
let ymin = .235
let ymax = .290
let Crunch = 800
let M = 4
let dx = (xmax-xmin)/(Hor_Pixels-1)
let dy = (ymax-ymin)/(Ver_Pixels-1)

call Save_Image_Definition

call Calculate_Initial_Values

clear
print " *** FRACTAL GENERATING PROGRAM ***"
set cursor 4, 1
print tab(15); "Conditions"
print
print tab(3); "xmin ..... = ";
print using "##.#####": xmin
print tab(3); "xmax ..... = ";
print using "##.#####": xmax
print tab(3); "ymin ..... = ";
print using "##.#####": ymin
print tab(3); "ymax ..... = ";
print using "##.#####": ymax
print tab(3); "Maximum Radius ... = ";
print using "##.#####": M
print tab(3); "Maximum iterations = ";
print using "<####": str$(Crunch)

! Loop to generate fractal
let Image_Line = 1
for j = ymin to ymax + dy/2 step dy
    set cursor 13,1
    let message$ = "... working on line " & str$(Image_Line) & "
    ...
    set cursor 13, (38-Len(message$))/2
    print message$
    let message$ = "... " & str$(Ver_Pixels-Image_Line) & "
    remaining ..."
    set cursor 15, (38-Len(message$))/2
    print message$

    let Pixel = 1
    for i = xmin to xmax + dx/2 step dx

        call Calculate
        call Packb(Picture_Data$, Pixel*16-15, 16, k)
        if key input then call Ask_if_F10
        let Pixel = Pixel + 1

    next i
next j

```

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```

write #1: Picture_Data$(1:Hor_Pixels*2)
let Image_Line = Image_Line + 1

next j

Call Stop_Program

sub Calculate

    let x=0
    let y=0
    let k=0
    let xk=0
    let r=0

    do while (r<M and k<Crunch)

        let xk = x*x - y*y + i
        let y = 2*x*y + j
        let x = xk
        let k = k+1
        let r = x*x + y*y

    loop

end sub

sub Calculate_Initial_Values

clear
print tab(3); "*** FRACTAL GENERATING PROGRAM ***"
set cursor 3, 1
print tab(3); "... Calculating initial values ..."
print tab(10); "... Please wait ...."
print

```







```

read #1, bytes Record_Size : graphic_line$

for i=xmin to Hor_Raster

    let k = Unpackb(graphic_line$, 1 + 16*(i-1), 16)

    call Packb(Plane_0$, i, 1, Color_Hash_Table_0(k))
    call Packb(Plane_1$, i, 1, Color_Hash_Table_1(k))
    call Packb(Plane_2$, i, 1, Color_Hash_Table_2(k))
    call Packb(Plane_3$, i, 1, Color_Hash_Table_3(k))

    if Max_Colors = 32 then
        call Packb(Plane_4$, i, 1, Color_Hash_Table_4(k))
    end if

next i

    let dummy = CopyMem(ptr_0, PlaneAddr(0) + Line_Bytes*y,
Raster_Bytes)
    let dummy = CopyMem(ptr_1, PlaneAddr(1) + Line_Bytes*y,
Raster_Bytes)
    let dummy = CopyMem(ptr_2, PlaneAddr(2) + Line_Bytes*y,
Raster_Bytes)
    let dummy = CopyMem(ptr_3, PlaneAddr(3) + Line_Bytes*y,
Raster_Bytes)
    if Max_Colors = 32 then
        let dummy = CopyMem(ptr_4, PlaneAddr(4) + Line_Bytes*y,
Raster_Bytes)
    end if

    call Press_F10_to_STOP

next y

do
    call Press_F10_to_STOP
loop

sub Init_Hash

    clear
    set color 1
    call Print_C(12, "... Initializing Hash Table ...")

    let a = 0
    let b = 0
    do
        do
            let Reg = Range(b,1)
            let Color_Hash_Table_0(a) = mod(Reg,2)
            let Reg = int(Reg/2)
            let Color_Hash_Table_1(a) = mod(Reg,2)
            let Reg = int(Reg/2)
            let Color_Hash_Table_2(a) = mod(Reg,2)
            let Reg = int(Reg/2)
            let Color_Hash_Table_3(a) = mod(Reg,2)
            let Reg = int(Reg/2)
            let Color_Hash_Table_4(a) = mod(Reg,2)

            let a = a + 1

        loop until a > Range(b,0)

        let b = b + 1

    loop until Range(b,0) = 0

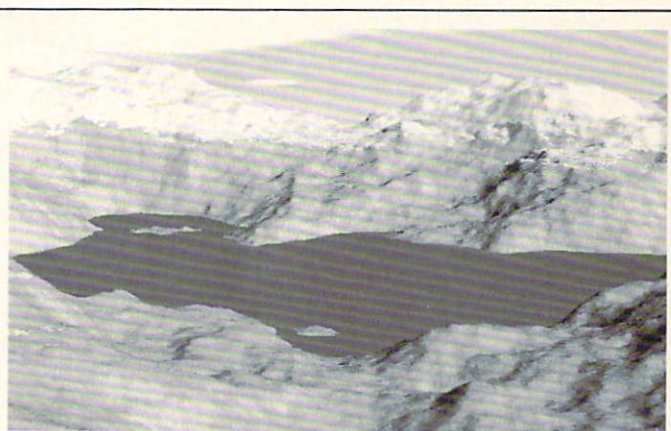
end sub

sub Use_New_Colors
    for i = 0 to Max_Colors-1
        set color mix (i) Intensity(i,0)/15, Intensity(i,1)/15,
Intensity(i,2)/15
    next i
end sub

sub Get_Fractal_File

    clear
    set window 0, 639, 199, 0
    call Print_C(1, "**** FRACTAL READER PROGRAM ****")
    let message$ = "Enter volume name Fractal_Data: in top line of
dialog box"
    let t = (80-Len(message$))/2
    set cursor 5, t
    print "Enter volume name ";
    set color 3

```



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*"...produces the most photographically realistic fractal landscapes I've seen on a computer screen."*, .info magazine, October 1990

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```

print "Fractal_Data:";
box lines 144, 496, 180, 62
set color 1
print " in top line of dialog box"
call Print_C(7, "then use MOUSE to select desired fractal
file.")
call Print_C(15, "... wait for DIALOG BOX...")

let button$ = "Fractal"
let filename$ = GetFile$(148, 64, type$, button$)
clear
if filename$ = "" then call Stop_Program("User selected
CANCEL")
open #1: name "Fractal_Data:" & filename$, organization byte
ask #1 : FILESIZE Length_in_Bytes
if Length_in_Bytes < 624 then call Stop_Program("Wrong Type of
File")

end sub

sub Get_Image_information

    read #1, bytes 2 : a$
    let Hor_Raster = Unpackb(a$, 1, 16)
    let Record_Size = Hor_Raster*2
    let Number_of_Records = int(Length_in_Bytes/Record_Size)

    read #1, bytes 2 : a$
    let Ver_Raster = Unpackb(a$, 1, 16)
    read #1, bytes 2 : a$
    let Crunch = Unpackb(a$, 1, 16)
    read #1, bytes 2 : a$
    let M = Unpackb(a$, 1, 16)
    read #1, bytes 22 : File_Type$
    read #1, bytes Record_Size-30 : a$

    if file_type$ <> "escape velocity values" then
        call Stop_Program("Wrong Type of File")

```



```

end if
if Number_of_Records < 2 then
    call Stop_Program("No Graphic data in this File")
end if

set window 1, 81, 25, 1
call Print_C(1, "**** FRACTAL READER PROGRAM ****")
let message$ = "RASTER data from : " & filename$
let t = (80-Len(message$))/2
set cursor 7, t
print "RASTER data from : ";
set color 3
print filename$
box lines 16, 66, 17, 9
let t = 22
set color 1
set cursor 11,1
print tab(t); "Length of file (bytes) ..... "; Length_in_Bytes
print tab(t); "Size of Raster (pixels) ..... "; Hor_Raster;
"x"; Ver_Raster
print tab(t); "Number of lines in image .... ";
Number_of_Records-1
print tab(t); "Maximum escape velocity ..... "; Crunch
print tab(t); "Maximum Radius ..... "; M
call Print_C(25, "... click MOUSE or press any KEY to CONTINUE
...")
call Wait_for_Keyboard

end sub

sub Get_Color_Information

clear
set window 0, 639, 199, 0
call Print_C(1, "**** FRACTAL READER PROGRAM ****")
call Print_C(7, "Double click on corresponding COLOR file")
call Print_C(15, "... wait for DIALOG BOX ...")
set color 3
call Print_C(5, "COLOR DATA NEEDED")
box lines 144, 496, 180, 62
set color 1

let button$ = "COLOR"
let intensity_file$ = GetFile$(148, 64, type$, button$)
clear
if intensity_file$ = "" then
    call Stop_Program("User selected CANCEL")
end if

let f$ = "Fractal_Data:" & intensity_file$
open #3 : name f$, access input, create old, organization text
input #3 : file_type$
if file_type$ <> "color data file" then
    call Stop_Program("Wrong Type of File")
end if

set window 1, 81, 25, 0
call Print_C(1, "**** FRACTAL READER PROGRAM ****")
let message$ = "COLOR data from : " & intensity_file$
let t = (80-Len(message$))/2
set cursor 3, t
print "COLOR data from : ";
set color 3
print intensity_file$
set color 1
call Print_C(6, "Register Number   Red   Green   Blue")
call Print_C(7, "_____ - _ - _")
set cursor 8, 1
let i = 0
do while more #3 and i <> 32

    when error in
        input #3 : w$, x$, y$, z$
    use
        exit do
    end when

    let Intensity(val(w$), 0) = val(x$)
    let Intensity(val(w$), 1) = val(y$)
    let Intensity(val(w$), 2) = val(z$)
    print tab(27); i;
    print tab(40); val(x$);
    print tab(48); val(y$);
    print tab(56); val(z$)
    let i = i + 1
    if i = 16 then
        call Print_C(25, "... click MOUSE or press any KEY to
        CONTINUE ...")
        call Wait_for_Keyboard

box clear 1, 81, 7, 24
set cursor 8,1
end if
loop

close #3

if i <> 16 then
    call Print_C(25, "... click MOUSE or press any KEY to
    CONTINUE ...")
    call Wait_for_Keyboard
end if

let Colors_Read = i

end sub

sub Get_Range_Information

clear
set window 0, 639, 199, 0
call Print_C(1, "**** FRACTAL READER PROGRAM ****")
call Print_C(7, "Double click on corresponding RANGE file")
call Print_C(15, "... wait for DIALOG BOX ...")
set color 3
call Print_C(5, "RANGE DATA NEEDED")
box lines 144, 496, 180, 62
set color 1

let button$ = "RANGE"
let range_file$ = GetFile$(148, 64, type$, button$)
clear
if range_file$ = "" then call Stop_Program("User selected
CANCEL")

let f$ = "Fractal_Data:" & range_file$
open #2 : name f$, access input, create old, organization text
input #2 : file_type$
if file_type$ <> "range data file" then
    call Stop_Program("Wrong Type of File")
end if

set window 1, 81, 25, 0
call Print_C(1, "**** FRACTAL READER PROGRAM ****")
let message$ = "RANGE data from : " & range_file$
let t = (80-Len(message$))/2
set cursor 3, t
print "RANGE data from : ";
set color 3
print range_file$
set color 1
let t = 30
call Print_C(6, "Escape Velocity   Color Register")
call Print_C(7, "_____")
set cursor 8, 1
let i = 0
let Range_Read = 0
do while more #2 and i < 2000

    when error in
        input #2 : x$, y$
    use
        exit do
    end when

    let Range(i, 0) = val(x$)
    let Range(i, 1) = val(y$)
    print tab(t); val(x$), val(y$)
    let i = i + 1
    if mod(i, 17) = 0 then
        call Print_C(25, "... click MOUSE or press any KEY to
        CONTINUE ...")
        call Wait_for_Keyboard
        box clear 1, 81, 7, 24
        set cursor 8,1
    end if
    loop

    if mod(i, 17) <> 0 then
        call Print_C(25, "... click MOUSE or press any KEY to
        CONTINUE ...")
        call Wait_for_Keyboard
    end if

    let Range_Read = Range(i-1,0)

close #2

end sub

```



```

sub Pick_Display
    let xmin = 1
    let ymin = 1

    if Ver_Raster = 200 or Ver_Raster = 196 then
        let ymax = 200
        if Hor_Raster = 320 or Hor_Raster = 312 then
            let Line_Bytes = 40
            let Raster_Bytes = Hor_Raster/8
            let xmax = 320
            set mode "LOW32"
            let Max_Colors = 32
        elseif Hor_Raster = 640 or Hor_Raster = 632 then
            let Line_Bytes = 80
            let Raster_Bytes = Hor_Raster/8
            let xmax = 640
            set mode "HIGH16"
            let Max_Colors = 16
        else
            call Stop_Program("Illegal Raster Size")
        end if
    elseif Ver_Raster = 400 or Ver_Raster = 396 then
        let ymax = 400
        if Hor_Raster = 320 or Hor_Raster = 312 then
            let Line_Bytes = 40
            let Raster_Bytes = Hor_Raster/8
            let xmax = 320
            set mode "LACELOW32"
            let Max_Colors = 32
        elseif Hor_Raster = 640 or Hor_Raster = 632 then
            let Line_Bytes = 80
            let Raster_Bytes = Hor_Raster/8
            let xmax = 640
            set mode "LACEHIGH16"
            let Max_Colors = 16
        else
            call Stop_Program("Illegal Raster Size")
        end if
    else
        call Stop_Program("Illegal Raster Size")
    end if

    set window xmin, xmax, ymin, ymax
end sub

sub Check_data_Limits
    if Colors_Read <> Max_Colors then
        set color 1
        call Plot_Text_C(150, "Colors in system = " &
str$(Max_Colors))
        call Plot_Text_C(140, "Colors in data file = " &
str$(Colors_Read))
        set color 3
        call Plot_Text_C(170, "**** WARNING ****")
        call Plot_Text_C(2, "-> MOUSE or any key to continue <-")
        call Wait_for_Keyboard
    end if

    if Crunch <> Range_Read then
        set color 1
        call Plot_Text_C(60, "Iterations in Graphic data = " &
str$(Crunch))
        call Plot_Text_C(50, "Iterations in Range data = " &
str$(Range_Read))
        set color 3
        call Plot_Text_C(80, "**** WARNING ****")
        call Plot_Text_C(2, "-> MOUSE or any key to continue <-")
        call Wait_for_Keyboard
    end if
end sub

sub Press_F10_to_STOP
    if key input then
        get key press_f10
        if press_f10 = 324 then
            call Stop_Program("User pressed F-10 to STOP program")
        end if
    end if
end sub

sub Plot_Text_C(Ver_Position, a$)
    let Plot_Length = len(a$)*8
    let Plot_Position = (xmin+xmax)/2 - (Plot_Length)/2

```

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```

    plot text, at Plot_Position, Ver_Position : a$
end sub

end

sub Print_C(Ver_Position, a$)
    set cursor Ver_Position, 1
    print tab( (80-len(a$))/2 ) ; a$;
end sub

sub Stop_Program(a$)
    set mode "GRAPHICS"
    clear
    set color 3
    call Print_C(10, "*****")
    call Print_C(11, "**** PROGRAM STOPPED ****")
    call Print_C(12, "*****")
    set color 1
    call Print_C(15, a$)
    call Print_C(25, "... click MOUSE or press any KEY to CONTINUE
...")
    call Wait_for_Keyboard
    close #1
    stop
end sub

sub Wait_for_Keyboard
    set cursor "OFF"
    do while key input
        get key k
        loop
    do
        get mouse : x, y, state
        loop until state = 0
    do
        get mouse : x, y, state
        if state <> 0 then exit do
        if key input then
            get key k
            exit do
        end if
    loop
    set cursor "ON"
end sub

```

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"C++: An introduction to object-oriented Amiga programming", by Scott B. Steinman  
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"CAD Overview: X-CAD Designer, X-CAD Professional, IntroCAD Plus, Aegis Draw 2000, UltraDesign", by Douglas Bullard  
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"Fixing The Flicker", MicroWay's Advanced Graphics Adaptor 2000, by John Steiner  
"The KCS Power PC Board", If you have an Amiga 500, and need IBM PC/XT software compatibility, the KCS Power PC Board can help, by Ernest P. Viveiros, Jr.  
"Build An Amiga 2000 Keyboard For The Amiga 1000", Get a better-feeling keyboard for under \$7.00, by Phillip R. Combs  
"Looking Beyond the Baud Rate", The Baud Bandit 2400 & Baud Bandit MNP/Level 5 Plus modems, by E. P. Viveiros, Jr.  
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"Information X-Change", Keeping up to date on the latest news via hardware, software, and cable TV, by Rick Broida  
"Stepper Motors", Part One of three part series on building a simple stepper motor, by John Iovine  
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"SketchMaster", review by Ernest P. Viveiros, Jr.  
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"Ultrasonic Ranging System", the sonar system project continues with the assembly of an ultrasonic ranging system, by John Iovine  
"Writing Faster Assembly Language", the discussion on how to speed up programs with assembly is completed, by Martin F. Combs  
"Programming In AmigaBASIC: Conditionals", using the IF/THEN statement in AmigaBASIC, by Mike Morrison  
"New Products And Other Neat Stuff", an advanced ray-tracing module for 3-D Professional, Bars&Pipes gets a price reduction, and DCTV is released, by John Rezendes  
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"Divisions", Night Shift, James Bond: The Stealth Affair, Wolf Pack, PowerMonger, and Harpoon are reviewed  
"Medley", learn how to load and modify MIDI files with your sequencer, by Phil Saunders  
"PD Serendipity", create your own menus to save to the bootblock with MenuWriter, or convert IFF pictures to C or assembly with IFF2Source, by Aimee B. Abren  
"C Notes From The C Group", working with functions in C, by Stephen Kemp  
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"Macro Paint", Lake Forest Logic's Dynamic hi-res, by R. Shams Mortier  
"An Impulse To Imagine", review by R. Shams Mortier  
"Top Form", Designing Minds' dedicated form publisher, by Jeff James  
"Quarterback Tools", a disk and file repair program to help fix system crashes and accidental file deletions, by John Steiner



# The Fred Fish Collection

Due to the increasing size of the Fred Fish Collection, only the latest disks are represented here. For a complete list of all AC, AMICUS, and Fred Fish Disks, cataloged and cross-referenced for your convenience, please consult the current AC's Guide To The Commodore Amiga available at your local Amazing Dealer.

<b>Fred Fish Disk 430</b>	<b>Lotto</b>	Small lotto number selector with C source. Author: Timm Martin
<b>Pointer</b>		Use the SID sleepy pointer in your programs. Includes C source, a sample program, and modules that you can plug in to your C programs. Author: Timm Martin
<b>ScupTools</b>		Programs to create objects for use in Sculpt 4D. Includes Brush, 4D to convert IFF brushes to objects in full color with HAM and EBH support and wrap to various shapes (update to version on disk 361). Fractal_4d to create fractal mountains with various coloring from brush, checkers or based on altitude, and Spiral_4d to create a variety of objects based on tubes and helices. Binary only. Author: Bruce Thomson
<b>SmartFields</b>		SmartFields is a replacement for Intuition string gadgets. It allows you to incorporate into your Amiga C programs the powerful editing capabilities often found in mini-computers. Includes full C source and documentation. Author: Timm Martin
<b>Fred Fish Disk 431</b>	<b>A68Kex</b>	Twelve examples demonstrating the use of Charlie Gibbs A68K assembler. Over a quarter megabyte of assembly source code. Author: E. Lenz
<b>AdvTemplates</b>		A collection of PD spreadsheet templates for business and law, originally intended for Lotus 123 on IBM PCs. They have been transferred to the Amiga, loaded into Gold Disk's The Advantage, and saved as native Advantage files. Requires Advantage V1.1 or higher. Author: Amiga port by Michael Toddovic
<b>CheerSheet</b>		A compilation of cheats, hints, backdrops, helpful bugs, passwords, codes, solves, and walkthroughs for over 150 Amiga games. January 1st, 1991 edition. Author: Mark Shrayner
<b>EZAsm</b>		Combines parts of the "C" language with 68000 assembly, giving it the "feel" of a higher level language. Supports all 1.3 functions. Uses braces and "else" like "C". Resulting code is optimized as much as possible. Takes source file you create and outputs a .asm file. Includes example source and executable files. Version 1.31, an update to version 1.3 on disk 421. Binary only. Author: Joe Siebenmann
<b>Fred Fish Disk 432</b>	<b>APALasm</b>	A Programmable Array Logic (PAL) program based on an old MMI Fortran IV program from the PAL Handbook, Second Edition and Third Edition by MMI. This Version (1.00) is completely rewritten for Fortran 77. The outputs produced are sent to separate files instead of the screen. There are plenty of example PAL files to test, inspect, or just to learn what PAL's are all about. The Fortran source is included with the instructions to compile using AC/Fortran version 2.3. Author: Bob Metzler
<b>Badger</b>		Reminder program for your startup sequence. Badger will open a window and display any important events that are 'due'. Badger will not bother you if there is nothing to report. Events are entered via menu and prompts. This is version 2.01e, an update to the version on disk 365, and includes many new features. Shareware, binary only. Author: George Kerber
<b>Conquest</b>		Lore of Conquest is a war game similar in concept to the board game Risk. You are the lord of an entire world, destined to rule the galaxy. Some worlds are virgin ruins, ready for you to colonize. Some worlds have natives who do not wish to accept your rule, these you must conquer for they will yield more valuable resources. As you claim the galaxy you will find, you are not the only one extending your dominion. This is a two-player game, so be prepared to defend yourself and take what is yours! Version 1.2, binary only. Shareware. Author: Michael Bryant
<b>FiloDev</b>		FIFO: is like PIPE: but is based on filio library rather than its own implementation. Filio library is a general filio library implementation that supports named files, writing to a filio from a hardware extension, multiple readers on a filio with each getting the same data stream, efficient reading, and automatic or manual flow control. Programs that require non-blocking I/O can access one side of a FIFO, connection via the filio library instead of the FIFO: device. Includes some source. Author: Matt Dillon
<b>Reader</b>		A program to scan a word list to locate which words can be made from the letters given. Allows matching of words by length and by giving the letters known, i.e. m.t.h for the word MATCH. Great for word games and crosswords. Results output to screen and a RAM-based file. The word list is in ascii and so can be edited if desired. New words can be added and it could be used for different languages if required. Supplied with over 24,000 words (mostly English spellings). Version 1.0, includes source. Author: Gary Brittain
<b>SSBackup</b>		Programs utility to assist in maintaining old versions of source code. SSBackup maintains 2-99 old versions in any location desired. Version 1.00e, binary only. Author: George Kerber
<b>TMonth</b>		TMonth will execute any program the first time it's executed each month. Very useful, for example, to execute the ATOM-CLOCK program to set your clock each month. Version 1.01, binary only. Author: George Kerber
<b>Whence</b>		Whence will locate any program file in your current path. Similar to the UNIX whence command. Version 1.0, binary only. Author: George Kerber
<b>Fred Fish Disk 433</b>	<b>DiskPrint</b>	Prints labels for 3.5" disks, primarily for PD library disks. Label data files can be loaded into memory so labels for special disks are available without having to type anything in or without having to wait for AmigaDOS to read in the full directory. This is version 2.3.5, an update to version 2.3e on disk 411. Shareware, binary only. Author: Jan Geissler
<b>Gwin</b>		GWIN or Graphics Window is an integrated collection of graphics routines callable from C. These routines make it easy to create sophisticated graphics programs in the C environment. One line calls give you a custom screen (any types available), menu items, requesters, text, circles, polygons, etc. GWIN is a two dimensional floating point graphics system with conversion between world and screen coordinates. GWIN includes built in clipping that may be turned off for speed. Use of color and XOR operations are greatly simplified. Many examples of the use of GWIN are included in an examples directory, including a linear graph program, geographic mapping program, SPICE 2G.6 graphics post processor, and others. Extensive documentation is included. This is version 1.1, an update to version 1.0 on disk 322, recomplied to be compatible with MANIX C Release 5. Author: Howard C. Anderson
<b>SysInfo</b>		A program which reports interesting information about the configuration of your machine, including some speed comparisons with other configurations, versions of the OS software, etc. Version 1.98, an update to version 1.94 on disk 420. Binary only. Author: Nic Wilson
<b>Fred Fish Disk 434</b>	<b>Backup</b>	Backup and Restore allow you to backup any directory tree with optional compression, and later extract all or part of the tree. The protection, date, and file comment are saved with each file. This is version 2.06, an update to version 2.04 on disk 258. Includes source. Author: Matt Dillon
<b>DynaCADD</b>		Part 1 of a two part demo distribution of DynaCADD from Disk International. DynaCADD is a professional 2D and 3D CAD package. This demo is fully functional except for disabled save and export functions. Requires a system with 68020/68030 and a 68881/68882 math processor. This disk contains all the files necessary to recreate the DynaCADD demo disk number 1. The files for demo disk number 2 can be found on library disk number 435. This is version 1.84, binary only. Author: Disk International
<b>GMC</b>		A console handler with command line editing and function key support. GMC provides extended command line editing, function key assignment in four levels, extended command line history, online help for functions in the handler, and an iconify function. Also includes an output buffer (dump to printer or window), filename completion, script function undo function, prompt beeper, pathname in window file, close gadget for KS 2.0, etc. This is version 9.8, an update to version 9.6 on disk 398. Shareware, binary only. Author: Goetz Mueller
<b>TypingTutor</b>		A simple typing tutor program which measures your typing speed and adjusts the level of difficulty accordingly. Shareware, binary only. Author: William Jordan
<b>Fred Fish Disk 435</b>	<b>DeluxeBEEP</b>	A little program that uses the exec SelfFunction call to play a sound sample of your choice whenever a program calls the Intuition DisplayBeep routine. Includes source and instructions on how to install your own sounds. Author: Jan van den Baard
<b>DynaCADD</b>		Part 2 of a two part demo distribution of DynaCADD from Disk International. DynaCADD is a professional 2D and 3D CAD package. This demo is fully functional except for disabled save and export functions. Requires a system with 68020/68030 and a 68881/68882 math processor. This disk contains all the files necessary to recreate the DynaCADD demo disk number 2. The files for demo disk number 1 can be found on library disk number 434. This is version 1.84, binary only. Author: Disk International
<b>Labeler</b>		A label generation program for Epson compatible printers. Has both English and German versions. This is version 3.0, binary only. Shareware, source available from author. Author: Siegfried Rings
<b>Fred Fish Disk 436</b>	<b>AtzicApp</b>	An App interface package fixed to work with Atzic 'C' version 5.0. This is version 1.9, an update to the version on disk 376, and includes a number of bug fixes and a couple of new features (such as vsprintf/vprintf) in the App routines and fixes for Kickstart 2.0). Includes source in 'C' and assembly language. Author: Olaf 'Olsen' Barthel
<b>BatchRequester</b>		A simple program which opens an App file requester and writes the result to an environment variable. Very useful if used in batchfiles. Version 1.1, source code in Oberon. Author: Christoph Teuber
<b>Berserker</b>		Detects and eliminates viruses. Knows all 'popular' viruses and their kin, including the new 'Centurion' and 'Traveling Jack' link viruses. Comes with a resident handler which continually checks memory to prevent virus infection and a utility to fix programs corrupted by the 'Centurion' and 'Traveling Jack' viruses. Version 5.02, an update to the version on disk 355. Contains partial source in assembly. Author: Ralf Thiermer
<b>Input</b>		How to read keyboard input simply and quickly. Includes C source, a sample program, technical discussion, and programming modules that you can 'plug in' to your own C programs. Includes source. Author: Timm Martin
<b>KeyMacro</b>		A keyboard macro program, configurable via a text file, that also supports hotkey program execution. You can map up to eight functions to each key, including keys such as cursor keys, the return key, etc. Version 1.8, an update to version 1.6 on disk 398. Includes source. Author: Olaf 'Olsen' Barthel
<b>ULib</b>		A shared reentrant Amiga runtime library featuring highly optimized assembly language versions of the LibC data compression / decompression routines. Compresses faster and more efficiently than any other currently available implementation of the Lzlib algorithm. Two example applications for data compression/decompression, an interface to the Amiga Oberon Compiler, and documentation how to use the library in your own programs are included. This is version 1.8, binary only. Authors: Holger P. Krekel and Olaf 'Olsen' Barthel
<b>MemGuard</b>		A program similar to MemWatch, which continually checks the low memory vector table for random trashing. Has been optimized and greatly enhanced to support the 68010, 68020, 68030, etc. microprocessors. Unlike MemWatch, MemGuard does not run as a dummy hook but rather as a low level interrupt routine which is capable of trapping memory trashing even before exec might know of it, and even while task switching is forbidden. Version IV, an update to version IIIa on disk 354, binary only. Author: Ralf Thiermer
<b>MMB</b>		With MMB, users of 3 button mice under WB 2.0 can use the middle mouse button as a shift key to do multiple selects. Binary only. Author: Garry Glendon
<b>MT420d</b>		Printer driver for the Mannesmann Tally MT420d. Update to the old version on disk 164. Includes a few bug-fixes. Author: Sascha Wildner
<b>Zoom</b>		A fast and efficient floppy disk archiving utility based on the data compression / decompression algorithms used by Libraray. Has an Intuition and a Shell interface. IFF supports Kickstart 2.0, is able to add texts and notes to archived output files, knows 66 different bootstrap viruses, includes a number of compression parameters (such as encryption of the output file) and a lot more. Version 3.10, binary only. Author: Olaf 'Olsen' Barthel
<b>Fred Fish Disk 437</b>	<b>CLWindow</b>	CLWindow allows you to manipulate the dimensions of a CL window. It can be moved, enlarged, or shrunk. This is version 1.00. Includes source in assembly. Author: Roger Fischlin
<b>Fip</b>		Very small program which replaces the left-Amiga-N and M commands with screen and window flipping commands. It's an excellent example of how to use PC-relative addressing within input handlers. Version 2.0, includes a technical discussion and source in C and assembly. Author: Mike Monaco and Timm Martin
<b>FMouse</b>		A mouse pointer accelerator, similar to Matt Dillon's DMouse. Includes a screen blander and 'hot keys'. This is version 1.01. Includes source in assembly. Author: Roger Fischlin
<b>PatchCompiler</b>		A program to generate patches using a Pascal like language to describe what needs to be patched. This is version 1.0. Includes source in assembly. Author: Roger Fischlin
<b>WaitAnyKey</b>		A CLI command which will wait until the user presses any key. Useful for batch files, to pause until any key is struck. Version 1.00, includes source in assembly. Author: Roger Fischlin
<b>Fred Fish Disk 438</b>	<b>GadgetED</b>	A program for creating and editing intuition gadgets. Includes a palette editor, generation of either C or assembly source, and binary saving for later loading and editing. Version 2.0, includes source. Author: Jan van den Baard
<b>MenuC</b>		A menu and gadget compiler. Takes a simple ascii file describing menus and gadgets and creates the appropriate Intuition structures needed to actually create working menus and gadgets, in either C or assembly source. This is version 0.8, binary only. Author: Bruce Mackay
<b>ToolLib</b>		A shared library containing 45 useful functions for all kinds of programs. There are functions for ports, sorting, gadgets, memory, string, directory and file handling, etc. Version 7.6, includes source. Author: Jan van den Baard
<b>Fred Fish Disk 439</b>	<b>AIBB</b>	Amiga Intuition Based Benchmarks is a program designed to test various aspects of CPU performance using a full intuition interface. Tests include 'WhitePixel', Sieve, Sort, Savage, Chrystone, and Matrix. Version 2.0, binary only. Author: LaMonte Koop
<b>Curses</b>		A link library containing many of the terminal independent standard 'curses' functions. Designed primarily for those interested in porting UNIX screen based programs to the Amiga. Version 1.22, an update to version 1.10 on disk 391. Includes source and examples. Author: Simon John Raybould
<b>DeluxeChanger</b>		Converts binary files to assembler, basic, or C source code data initialization statements. It is used to add graphics or sound samples to programs as initialized data. Version 1.0, includes source in assembler. Author: Andreas Ropke
<b>HODick</b>		A program selector, typically installed in the startup sequence as the first command. Has user defined gadgets, a configuration file, an iconify function, and works with both NTSC and PAL systems. This is version 1.21, binary only. Author: Claude Mueller
<b>M2Uls</b>		Various source modules for Benchmark Module 2. Includes ColorEq, an interface to the Desidents color library, IFFLib, an interface to Christian Webers IFF library, and ARP, an interface to ARP V1.3. Author: Sascha Wildner
<b>Fred Fish Disk 440</b>	<b>3DPlot</b>	A 3D contour plotting program that does hidden line, solid, or contour plots of equations of the form Z=F(X,Y). You can scale the plot, set plot limits, change rotation, etc. Can save and load the plots themselves, as well as the data. Version 2.0, includes source. Author: Randy Finch
<b>DMake</b>		Matt's version of the UNIX make utility. Features multiple dependencies, wildcard support, and more. This is version 1.0, an update to version 1.0 on disk 246, but now includes source. Author: Matt Dillon
<b>MegaD</b>		Yet another disk utility program for the Amiga. This one allows an unlimited number of directories to be accessed simultaneously. Version 1.01, shareware, binary only. Author: John L. Jones
<b>Fred Fish Disk 441</b>	<b>Dekad</b>	A disk and file hexadecimal editor. Useful for editing binary files. Version 1.10, shareware, binary only. Author: Christian Warten, Marc Dionne
<b>DiskPrint</b>		Prints labels for 3.5" disks, primarily for PD library disks. Label data files can be loaded into memory so labels for special disks are available without having to type anything in or without having to wait for AmigaDOS to read in the full directory. This is version 2.3.5e, an update to version 2.3.5 on disk 433, and fixes a minor problem with some printers. Shareware, binary only. Author: Jan Geissler
<b>Dme</b>		Version 1.42 of Matt's test editor. Dme is a simple WYSIWYG editor designed for programmers. It is not a WYSIWYG word processor in the traditional sense. Features include arbitrary key mapping, fast scrolling, title-line statistics multiple windows, and ability to iconify windows. Update to version 1.38 on disk number 284, includes source. Author: Matt Dillon
<b>Fred Fish Disk 442</b>	<b>ToolManager</b>	ToolManager With ToolManager you can add your own programs to the tools menu of the 2.0 Workbench. Requires Workbench 2.0. Version 1.2, includes source. Author: Stefan B.
<b>UUCP</b>		An implementation of uucp for the Amiga, including mail and news. This is Matt's version for the Amiga, based on William Lohus's Amiga UUCP 0.40 release with news code from his 0.60 release, and months of work by Matt to make fixes and add enhancements. This is version 1.080, an update to version 1.060 on disk 360, and consists of three parts. Parts 1 and 2 are on this disk, and part 3 is on disk 443. Includes source. Author: Various, major enhancements by Matt Dillon
<b>Fred Fish Disk 443</b>	<b>DICE</b>	Dillon's Integrated C Environment. A C frontend, pre-processor, C compiler, assembler, linker, and support libraries. Features include ANSI compatibility, many code optimizations, and automatic routines (user routines called during startup before main is called). This is version 2.06.14, an update to version 2.02 on disk 359. Shareware, binary only. Author: Matthew Dillon
<b>UUCP</b>		An implementation of uucp for the Amiga, including mail and news. This is Matt's version for the Amiga, based on William Lohus's Amiga UUCP 0.40 release with news code from his 0.60 release, and months of work by Matt to make fixes and add enhancements. This is version 1.080, an update to version 1.060 on disk 360, and consists of three parts. Parts 1 and 2 are on disk 442, and part 3 is on this disk. Includes source. Author: Various, major enhancements by Matt Dillon
<b>Fred Fish Disk 444</b>	<b>ChinaChallenge</b>	A game similar to Shanghai or Mahjong. The goal is to remove all parts of the pile, the so called Dragon, step by step. This dragon is composed of 120 different game pieces. You can always find four pieces displaying the same picture or chinese symbols. This is version II, an update to the version on disk 312. Changes include some bug fixes, unlimited undo, saving and loading of games, background music, tile screen, etc. Binary only. Author: Dirk Hoffmann
<b>EliteBBS</b>		An online message and file handling system. Features include a message base, private mail file library, support for xmodem, ymodem, and zmodem, fully buffered serial I/O routines for top speed, time limits, and more. Version V.31, binary only. Author: Nick Smith
<b>MissileCmd</b>		A fast Missile Command game written in assembly. Features include using a hires interface screen, time based events for correct operation on any speed Amiga, multitasking handling, and sound effects. Binary only. Author: Max Ehardt
<b>RegExLib</b>		Shared library that implements regular expression pattern matching. Version 1.0, binary only. Author: Stephen Moshier
<b>UltraF4</b>		Demo version of a super graphic based floppy format program that can format four floppy disks at the same time and even format disks that other programs give up on. Binary only. Author: Terry Bullard and Sigma Bullard
<b>Fred Fish Disk 445</b>	<b>MWTape</b>	A tape handler which uses scsi device to implement serial access to typical streaming tape devices. Includes source. Author: Markus Wandel
<b>OptMouse</b>		A program which allows you to use a Mouse Systems M3 serial mouse on the Amiga and instructions which allow a serial mouse to be modified to plug directly into the Amiga mouse port. Useful as an example of how to 'talk' mouse movements and may be of use in writing drivers for digitizers, light pens, and the like. Includes source. Author: Ed Hanway
<b>Tar</b>		A port of a UNIX tar clone that can work with the TAPE: handler (also in this disk) to read and write UNIX tar compatible tapes. Includes source. Author: John Gilmore, FSF, Jonathan Hue, et al.
<b>TurboText</b>		An almost fully operational demonstration copy of a new sophisticated text editor for the Amiga. Features many unique capabilities including an impressive APARX interface with over 140 commands available, full outlining abilities, clipboard support, complete reconfigurability, recorded macros, programmer's calculator, emulations of many popular text editors, and much more. This demo version does not allow saving or printing of documents and limits the size of cut and paste operations. Version 1.0, binary only. Author: Martin Tailleur
<b>UUCP</b>		A bug fix for UUCP 1.08 released on disks 442 and 443, which had already been finalized at the time this fix reached me so could not be included there. Fixes a serious bug in uucio. Author: Matt Dillon



<b>Fred Fish Disk 446</b> CanonBJ	A printer driver for the Canon BJ series of printers. Faster and supports more graphic and text modes than the standard Commodore driver. Shareware, binary only. Author: Wolf Faust	Shazam	A picture viewer for Dynamic Hires images created with Macro Paint, the 4096 color high resolution paint program from Lake Forest Logic. Version 1.1, includes two sample Dynamic Hires images and source for display program. Author: Lake Forest Logic	Enforcer	Enforcer uses the MMU to build a shroud of protection over anything that is not legal memory. Any empty holes in the address space are marked as illegal. Reads of the system ROMs are allowed, but not writes. With the exception of longword reads of location 4, the lowest 1K of memory is completely protected. When an illegal access is detected, the power LED will flash and a detailed message will be sent out the serial port. Binary only. Author: Bryce Nesbitt	Chh	Version 4.02a of a chh like shell derived from Matt Dillon's shell, version 2.07. This is an update to version 4.01a on disk 331. Changes include bug fixes, preservation of file protection bits by op, some new commands, and reformatted documentation. Includes source. Author: Matt Dillon, Steve Drent, Carlo Borro, Cesare Dini
GamePort	A toolkit with link time and shared libraries that allow easy access to the GamePort device. Includes examples and test programs. Version 1.1, binary only. Author: Paris Bingham	WonderSound	Wondersound is an additive harmonic instrument design tool with a separate envelope design window and 16 relative harmonic strength and phase angle controls. Version 1.7, an update to version 1.6 on disk 428. Binary only. Author: Jeffrey Harrington	Redaktu	A PostScript program which runs on PixaScript to edit other PostScript programs. Several examples and a detailed explanation are included. Author: John Stirling	GiFMachine	A program that will convert CompuServe GiF image files into IFF SHAM and 24bit ILBM's. It offers a number of extra options like dithering, horizontal and vertical flip, as well as automatic border removal. Requires KickStart version 2.0 or greater to run. This is version 2.116, an update to version 2.104 on disk 405. Includes source. Author: Christopher Wichura
Input	A toolkit with link time and shared libraries that allow easy access to the input device. Includes examples and test programs. Version 1.1, binary only. Author: Paris Bingham	<b>Fred Fish Disk 450</b> AmyWalker	Another cute animation from Eric Schwartz. This one has Amy the Squirrel attempting to take a wrench to the "Walker" from "The Empire Strikes Back". Author: Eric Schwartz	SillStore	A program designed for freeware, corporate, and broadcast television. It loads and displays IFF images of any resolution interchangeably from a list file or as inputted directly (i.e. random access). The user may easily skip forward or backward one or more pictures in the list. A "generic" display is always just a few seconds away. The program can be used "on air" with no concern that a pull down menu will suddenly appear in the viewable area. It also provides for a precise cue for changing windows or screens. While the main purpose is to load "news windows" of 1/4 screen size, SillStore can also handle full-sized and overscanned images. Also includes slide show modes and a screen positioning feature. SillStore is written in the Director language from the Right Answers Group. This is version 1.2.1, an update to version 1.2 on disk 417. Binary only, source available from authors. Author: R. J. (Dick) Bourne and Richard Murray	ToXily	A package of Affix scripts, for CynusEd users, which allows total control of AmigaTex from within CED. This is version 1.10w, binary only. Author: Wolf Faust
PointerLib	A disk based shared library which provides programmers with easy access to custom pointers and a consistent user selected buzzer. Includes source. Author: Luke Wood	MinRexx	A simple ARexx interface which can be easily patched into almost any program. Includes an example the freeware program from disk number 1. This is version 0.4, an update to the version on disk 188. Includes source. Author: Tomas Rokicki	Vortex	A universal accented character converter for Amiga, IBM-PC, Macintosh, and OS/2 files written in most west european languages (Danish, Finnish, French, German, Italian, Italian, Norwegian, Spanish, Swedish, and more. Works with either ASCII or Word Perfect files. Version 1.5, includes source. Author: Michel Lalberie	<b>Fred Fish Disk 452</b> AmiDock	An Amiga version of the NeXT's "dock", but more versatile and not as limited. Provides you with a number of buttons on the WorkBench screen that, when pressed, will launch other programs. These buttons are fully configurable to run any program you want. Version 1.2.4, binary only. Author: Gary Kidgley
Post	An excellent PostScript interpreter for the Amiga which implements the full Adobe language. Supports type 1 and type 3 fonts, screen output, file output, and printer output. Requires Amiga V39+ and ConMan V1.3+. This is version 1.4, an update to version 1.3 on disk 408. Includes source in C. Author: Adrian Aylward	Tabu	Quarter inch cartridge (QIC) tape backup utility. Works with Microbit's HardFrame. May work with other controllers as well (untested). Includes source. Author: Roy C. Sigbsby	<b>Fred Fish Disk 451</b> Liner	A shareware outliner whose function is to create outlines for notes or export to other programs. Liner can save an outline as ASCII text and is clipboard compatible. This version utilizes a number of AmigaDOS 2.0 features and thus requires 2.0. Support for the new ECS Denise display modes is also included. Version 2.11, an update to version 2.00 on disk 394. Includes source in C. Author: Dave Schreiber	Conquest	Lore of Conquest is a war game similar in concept to the board game Risk. You are the lord of an entire world, destined to rule the galaxy. Some worlds are natives, ready for you to colonize. Some worlds have virgins who do not wish to accept your rule, these you must conquer for they will yield more valuable resources. As you claim the galaxy you will find, you are not the only one extending your dominion. This is a two-player game, so be prepared to defend yourself and take what is yours! Version 1.3, an update to version 1.2 on disk 432. Binary only, shareware. Author: Michael Bryant
<b>Fred Fish Disk 447</b> AmiBack	Demo version of a new backup utility. Features include backup to any AmigaDOS compatible device (such as floppies, removable hard disks, fixed media hard disk, and tape drives), no copy protection, configuration files, complete backups, incremental backups, selective backups, file exclusion filter, setting of archive bit, etc. Demo version does not have restore, compare, or scheduler. Version 1.0, binary only, requires AmigaDOS 2.0. Author: Moonlighter Software	UUCP	A bug fix for UUCP 1.08 released on disks 442 and 443, which had already been finalized at the time this fix reached me so could not be included there. Includes a new getty and some bug fixes. Author: Matt Dillon	<b>Fred Fish Disk 455</b> AngusCopy	A disk copy program with intuition user interface. Version 2.0, shareware, includes source in Modula II. Author: Andreas Gunser	Rigen	An Affix library that allows you to call any function of almost any Amiga library from an Affix program. This is version 1.0, binary only. Author: Francois Roux
BackPac	Demo version of a new backup program. Features include intuition interface, data compression, 907K written per floppy, full and incremental backups, full or selected restores, inclusion/exclusion patterns, user defined config files, multitasking friendly. Version 1.3, binary only. Author: Canadian Prototype Replicas	Convert	Converts 39 different image formats into CBM standard 24 bit IFF files for display on devices such as Black Belt Systems HAM-E product. Version 1.6, binary only. Author: Peter Patterson and Ben Williams	ConvMacP	Converts Macintosh type 1 Adobe fonts to a format usable on the Amiga. Reads a compressed Macintosh format Adobe font file and unpacks it to an ASCII text file, which permits sending the font to a printer as a PostScript program. Includes source. Author: Unknown, Amiga port by Joe Pearce	XorZmoeM	An Amiga shared library which provides Xmodem file transfer capability to any XPR-compatible communications program. This is version 2.10, an update to version 2.0 on disk 261. Includes source. Author: Rick Hudson
DFC	Disk Format and Copy program. A nice, general purpose, disk formatter and copier. This is version 5.0, an update to the version on disk 131. Includes source. Author: Tom Rokicki and Sebastiano Vigna	ProDrivers	AmigaDOS 1.3 printer drivers for the IBM 4201 and 4202 series of printers. Version 1.0, binary only. Author: David White	MemMon	A small memory monitor. Version II, shareware, includes source in Modula II. Author: Andreas Gunser	Zoom	A fast and efficient floppy disk archiving utility based on the data compression / decompression algorithms used by iLibrary. Has an intuition and a Shell interface, fully supports Kickstart 2.0, is able to add tests and notes to archived output files, knows 66 different bootblock viruses, includes a number of compression parameters (such as encryption of the output file) and a lot more. Version 4.1, an update to version 3.10 on disk 436. Binary only. Author: Olaf "Olser" Barthel
FlashBack	Demo version of a new backup utility. Fully functional version except for the restore operation. Features include backup of multiple partitions in one pass, backup of non-AmigaDOS partitions, backup to a file, automated unattended backups, pattern matching, and streaming tape support. Version 2.05, binary only. Author: Leon Frenkel, Advanced Storage Systems	RCS	The Revision Control System (RCS) manages multiple revisions of text files. RCS automates the storing, retrieval, logging, identification, and merging of revisions. RCS is useful for text that is revised frequently, for example programs, documentation, graphics, papers, form letters, etc. This is an update to RCS version 1.2 on disks 281 and 282, and includes all the files that have changed. Author: Walter Tichy. Amiga port by Raymond Brash	Vit	Both a VT100 emulator and a Tektronix (4014 plus subset of 4105) emulator, currently in use at SLAC (Stanford Linear Accelerator Center). Although the VT100 part was originally based on Dave Wecker et al's VT100, many enhancements were made. Features include use of ARP, an Affix port, XMODEM 1K/CRC and Kermit protocols, support for additional serial ports, external file transfer protocols (XPR), a "chat" mode, and scrollback/review history buffer. It comes in two versions, one with Tektronix emulation, and one without. The Tektronix emulation allows saving IFF files, PostScript files, and printing bitmaps to the printer. This is version 5.034, an update to version 4.845 on disk 410. Binary only. Author: Willy Langeveld	<b>Fred Fish Disk 462</b> JMenu	This program allows an AmigaDOS script to display a menu, wait for the user to make a selection either with the mouse or the keyboard, and return the selection back to the script through an environment variable. It can also immediately execute any valid AmigaDOS command based upon the menu selection. The maximum size of the menu is based on the screen resolution and font size, up to a maximum of 26 selections of a maximum of 80 characters each and an optional title of up to 4 lines. Version 1.1, binary only. Author: James Collins
SMAn	A Mandelbrot generation program. Uses the mouse to select regions within borders of the Mandelbrot set to zoom up to magnifications of 10^19. Includes math coprocessor support and options to save images as an IFF file. Shows example of assembly programming of extended precision for the 68881. Includes source. Author: David McKinstry	RIManDisk	Another recoverable ram disk. This one supports up to 32 units and can be autoformatted. Unused sectors are deleted from memory. The ram disk can be formatted, copied to, or used just like a normal disk drive. Binary only. Author: Bob Dayley	SnoopDos	A utility for monitoring AmigaDOS calls. In particular, it allows you to see what libraries, devices, fonts, environment variables or startup files a program is looking for. Very useful when you're trying to install a new application. Version 1.2, an update to version 1.0 on disk 388. Includes source in C. Author: Eddy Carol	<b>Fred Fish Disk 463</b> CheatSheet	A compilation of cheats, hints, backdrops, helpful bugs, passwords, codes, solves, and walkthroughs for over 150 Amiga games. February 1st, 1991 edition, an update to January 1st edition on disk 431. Author: Mark Shroyer
TCL	Part of Tool Command Language, a simple textual language intended primarily for issuing commands to interactive programs such as text editors, debuggers, illustrators, shells, etc. It has a simple syntax and is programmable so TCL users can write command procedures to provide more powerful commands than those in the built-in set. Alpha 2 version, binary only. Author: Dr. John Outerhout, Amiga port by Hackercorp	FLODemo	Floplan Construction Set demo. Fully functional except the Save IFF function is disabled and 15 pages of clip rooms have been replaced by a single sample page. This is version 1.48, binary only. Author: Jim Hennessey, Gramma Software	<b>Fred Fish Disk 457</b> CManual	Parts 3 and 4 of a complete C manual for the Amiga which describes how to open and work with Screens, Windows, Graphics, Gadgets, Requests, Alerts, Menus, IDCMP, Sprites, VSPrints, AmigaDOS, Low Level Graphics Routines, Hints and Tips, etc. The manual also explains how to use your C Compiler and gives you important information about how the Amiga works and how your programs should be designed. The manual consists of 15 chapters together with more than 100 fully executable examples with source code. When unpacked, the manual and examples nearly fill up four standard Amiga floppies. This is version 2.0, an update to version 1.0 on disk 337. Because of its size, it is distributed on two binary disks, parts 1 and 2 on disk 456 and parts 3 and 4 on disk 457. Author: Anders Bjørn	NetHack	A screen oriented fantasy game where your goal is to grab as much treasure as you can, retrieve the Amulet of Yendor, and escape the Mazes of Moria alive. On the screen is a map of where you have been and what you have seen on the current dungeon level. As you explore more of the level, it appears on the screen in front of you. NetHack generates a new dungeon every time it is played, thus even veteran players will continue to find it entertaining and exciting. This is version 3.0, patch level 10, an update to version 2.3 on disks 189 and 190. Binary only, source available. Author: Various, see documentation.
<b>Fred Fish Disk 448</b> AmigaPet	Another cute screen hack. Version 2.52b, binary only, source available from author. Author: Patrick Evans	ImageLab	A program which performs image processing on IFF pictures. Includes specific processing functions such as convolution, averaging, smoothing, enhancement, histograms, FFT's, etc. Also includes file conversion functions, a clipboard, and other useful functions. Version 2.4, an update to version 2.2 on disk 243, includes bug fixes, PAL support, overscanned and super-bitmap image support, improved paint operation, better area selection, HAM histograms, and FFT's. Binary only. Author: Gary Millon	<b>Fred Fish Disk 458</b> ATCopy	A program to copy files from the Amiga side of a system equipped with a PC-AT bridgeboard, to the PC side, using wildcards. Copies directly through the shared memory. Supports CLI and WorkBench usage. This is version 2.2, an update to version 2.1 on disk 429. New features include much faster copying and selection of all options using WorkBench. Shareware, binary only. Author: Peter Vornenk	ShadowMaker	Demo version of an intuition based Font shadow generator. In seconds you can convert your favorite fonts into color fonts with professional video shadow built in. The only restriction for this demo is that the final font height at SAVE times must be less than 40 pixels in height. Version 1.5, an update to version on disk 428. Binary only. Author: Stephen Lebars
AmiDev	AmiFIFO: is like FIFO, but is based on file library rather than its own implementation. Fifo library is a general file library implementation that supports named files, writing to a file from a hardware exception, multiple readers on a file with each getting the same data stream, efficient reading, and automatic or manual flow control. Programs that require non-blocking IO can access one side of a FIFO: connection via the file library instead of the FIFO: device. Version 2, an update to version on disk 432. Includes source. Author: Matt Dillon	MandelPAUG	A version of MandelFXP with complete online help, a fully implemented Mandelbrot and Julia set "movie mode", and many improvements in the user interface. Version 2.1, binary only, source available. Author: Bruce Dawson, Steve Larocque, Jerry Hadden	<b>Fred Fish Disk 459</b> AmigaTractionA	"Concentration" like game for the Amiga, where you must locate matching tiles on a grid that can range from 4x4 (easy) to 12x12 (difficult). Version 1.0, binary only. Author: Gabe Dabec	To Be Continued....	
MkId	A program identifier database package that provides a logical extension to "ctags". The ID facility stores the locations for all user identifiers, predecessor names, and numbers (in decimal, octal, or hex). Includes source. Author: Greg McGary. Amiga port by Randall Jesup	Lemmings	Demo version of an enchanting new game from Pygrynos. The lemmings are cute little guys you have to guide across the screen from one level to the next, over and under and around various obstacles, by using your mouse and changing each lemming's characteristics to get them to perform various useful tasks such as building bridges or digging through obstacles. Binary only. Author: Dave Jones, Gary Timmons, Scott Johnston, and Brian Johnston	<b>Fred Fish Disk 460</b> Line	A shell written to enhance the bare-bones CLI with features that many people find useful in the UNIX chh, including history, aliases, a directory stack, etc. Version 1.15, includes source. Author: John D. Aycock	In Conclusion	To the best of our knowledge, the materials in this library are freely distributable. This means they were either publicly posted and placed in the public domain by their authors, or they have restrictions published in their files to which we have adhered. If you become aware of any violation of the authors' wishes, please contact us by mail.
NightMare	A handy little program that uses "hook" techniques to scare people. Fun to watch while someone else is using your computer. Version 1.0, binary only, source available from author. Author: Patrick Evans	ProjMot	A Projectile Motion plotter. Plots the path of a projectile fired with a variable initial velocity and angle. Display can be scaled, and time can be accelerated. The program returns the distance traveled and the time it took. This is version 1.01, includes source. Author: Chris Hopps	QuickReq	An "ask utility" to replace the "ask" command from AmigaDOS. QuickReq can load arguments from files thus making it possible to handle long questions and tests. Also supports optional line breaks in BodyText, an option to center text to window, DisplayBeep when requester is activated, setting your own FrontPn number, specifying requester width and height and all kinds of overcan displays. First public release. Version 2.0, includes source. Author: Markus Aalto	Any Non-commercial Amiga user group wishing to duplicate this list should contact:	
OnTime	Holds up a task until a given time and then releases it to run. Version 1.0a, binary only, source available from author. Author: Patrick Evans	Quick	A utility program specifically targeted at hard drive users to eliminate the frustration of launching programs on the Amiga. It eliminates the need to open Workbench windows and for remember and type in long pathnames to executables. Version 1.0, binary only. Author: Greg Gorty	<b>Fred Fish Disk 461</b> Decipal	A software fix for programs that use instructions which are privileged on the 68010/020/030. Update to the version on disk 18. Includes source in assembly. Author: Bryce Nesbitt	PIM Publications, Inc. P.O. Box 869 Fall River, MA 02722	
PicToANSI	Converts a one bit plane 320x200 IFF picture to a file that displays the picture on any ANSI compatible terminal. Binary only, source available from author. Author: Patrick Evans	<b>Fred Fish Disk 462</b> Globulus	Demo version of a new arcade game that is reminiscent of the old Qbert game. You control a cute little character and hop him around pathways in a diagonal kind of world, while trying to avoid bad things and catch good things. Binary only. Author: Inperisne	Handshake	A full featured VT52/VT100/VT102/VT220 terminal emulator. The author has taken great pains to support the full VT102 spec. Supports ANSI colors, screen capture, XPR external protocols, user selectable fonts, Affix, and more. This is version 2.20c, an update to version 2.12a on disk number 172. Binary only, shareware. Author: Eric Haberlertner	AC is extremely interested in helping any Amiga user groups in non-commercial support for the Amiga.	
SolitaireX	A solitaire game. Features include all possible moves shown with a pulsing green box around the card, reshuffle, unlimited undo, and tournament mode. Binary only. Author: Stephen Orr, Gregory M. Stelmack	ST2Amiga	A program to convert Atari ST format relocatable executables to Amiga format relocatable executables, for subsequent loading into the ReSource disassembler and conversion to Amiga. ST2Amiga should also compile and run on an ST. Version 1.1, includes C source. Author: David Campbell	Swish	A small simple screen hack that pushes the screen around using the view port, and simulates a floating motion. Binary only, source available from author. Author: Patrick Evans		
<b>Fred Fish Disk 449</b> GloboBus	Demo version of a new arcade game that is reminiscent of the old Qbert game. You control a cute little character and hop him around pathways in a diagonal kind of world, while trying to avoid bad things and catch good things. Binary only. Author: Inperisne	Handshake	A full featured VT52/VT100/VT102/VT220 terminal emulator. The author has taken great pains to support the full VT102 spec. Supports ANSI colors, screen capture, XPR external protocols, user selectable fonts, Affix, and more. This is version 2.20c, an update to version 2.12a on disk number 172. Binary only, shareware. Author: Eric Haberlertner	IT2Ansi	Turns any two-color low-res IFF picture into ANSI text that can be displayed on any ANSI compatible terminal. This is version 0.1, includes source in assembly. Author: Carnivore/BeerMacht		



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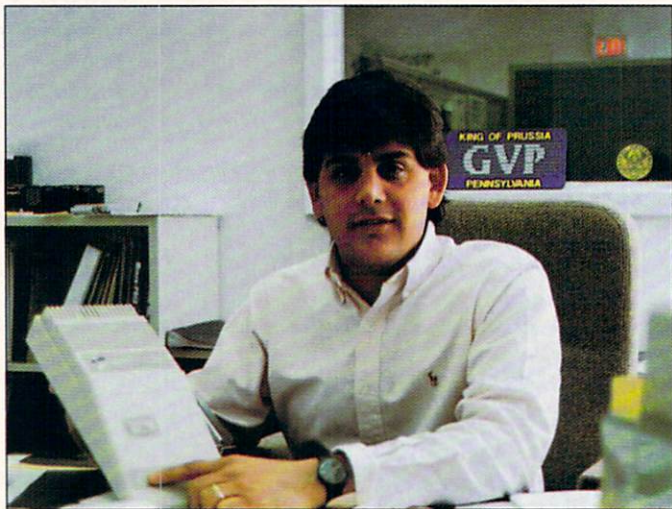


# And furthermore...

## An interview with GVP's Gregg Garnick

Just twenty minutes from the US home of Commodore Business Machines resides one of CBM's biggest competitors for the Amiga peripheral market, Great Valley Products. We recently met Mr. Gregg Garnick, GVP's V.P. of Sales and Marketing, at their new 11,000-square-foot facility.

The bright, freshly painted offices created the perfect background for the quick talking and highly motivated Mr. Garnick. At 27, Mr. Garnick is one of the youngest Amiga developers, with GVP having become one of the largest Amiga vendors. With an assortment of hardware products for the Amiga 500 and Amiga 2000 of around 100 configurations, GVP is distributed in 20 countries.



AC: How many people started with GVP?

GG: In the beginning really two people — it was just me and Dave Zeimbicki. At that time, Dave had manufacturing capability.

AC: What were your duties?

GG: Early on we were both doing everything: shipping, technical support, etc. I was working out of my 850-square-foot apartment. We needed to channel the money into the right areas — for example, product development, marketing, and advertising areas rather than secretaries and telephones.

We said, "Instead of buying a chair today, let's wait a month, and then we'll buy the chair. We can sit on the floor just as well to present our ideas to dealers out in the field by phone." In six months, we ran out of room.

AC: How many people work at GVP today?

GG: We have about 40 people today. We have in-house board layout equipment and systems for custom chip layout.

We have placed a lot of our resources into R&D all for the Amiga. People think that we are absolutely crazy, but as long as we are

growing, able to make money, hire people, and develop new products for this platform, we are very happy with the Amiga.

The Amiga is a very interesting product line. The strength that it has overseas really helps. Even though the platform is not diversified — we are dependent upon Commodore in a lot of regards since they have diverse channels of distribution — it makes it a lot more exciting and makes it a lot easier to handle the ups and downs of the US economy.

AC: When did Gerard Bucas come aboard?

GG: Gerard Bucas, who was V.P. of World Wide Engineering for Commodore, came in after we were going a bit. The timing was right for him. We were a fresh startup and he

was a little frustrated at Commodore after being there for four years. He felt that the Amiga had a lot of potential. He is a brilliant guy. A lot of his frustration came from his desire to get certain products to market that, for whatever reason, Commodore was having problems doing. He just felt frustrated. He felt that there must be someone who could take these ideas that he had and make them happen for the Amiga.

Gerard thought about it long and hard and saw that we needed more expertise than we had and we needed more capital and he brought both. He became President.

With Gerard, we were able to attract higher echelon people. Not only attract them, but we were able to afford them. We always stressed new product development and we needed more people in that area. We wanted to get all development in house to do quick turnarounds and get products out to market a lot faster. We were fortunate to attract Jeff Boyer, who is now V.P. of Engineering.

AC: And today?

GG: We are still as pumped now as we were then. We have been going flat out for three years.

AC: The Series II boards were a change.

GG: Yes, the Series II was a long undertaking to implement our custom chips on our products. To stay on top, you must have the latest in technology, from both a price-competitive standpoint and a performance standpoint.

We always want to build a better mousetrap for the consumer and this is a multifunctional board which allows a high-performance SCSI controller, 8 megabytes of memory installed, as well as a hard drive, to be mounted on the same board. We are saving the consumer slots as well as the ability to buy one product rather than two products. That has been our strategy.

We have the Ricoh removable drives that we announced under the Series II program, as well as some video-oriented products that we are doing for the Amiga 3000. We

### To stay on top, you must have the latest in technology...

are also involved with products for Amiga UNIX. To bring multimedia into the UNIX community is a whole new thing.

AC: And now software?

GG: Yes, the software is new for us. We were at Köln for Amiga '90 this past November. We saw SCALA, which was designed by Digital Visions in Norway. We thought it was a spectacular program. I am a sales and marketing guy and I thought that this was a perfect tool and it was needed. It fit very nicely in our product line. For example, moving IFF files into the program and creating animations with an accelerator card is very helpful. So if the software is hard drive or accelerator-intensive, it becomes a perfect fit in our product line.

AC: What has been the reaction?

GG: The initial reaction has been phenomenal. This is the first product. It will not end here. There are exciting new things that will be added to the product as well as hardware. SCALA is very exciting.

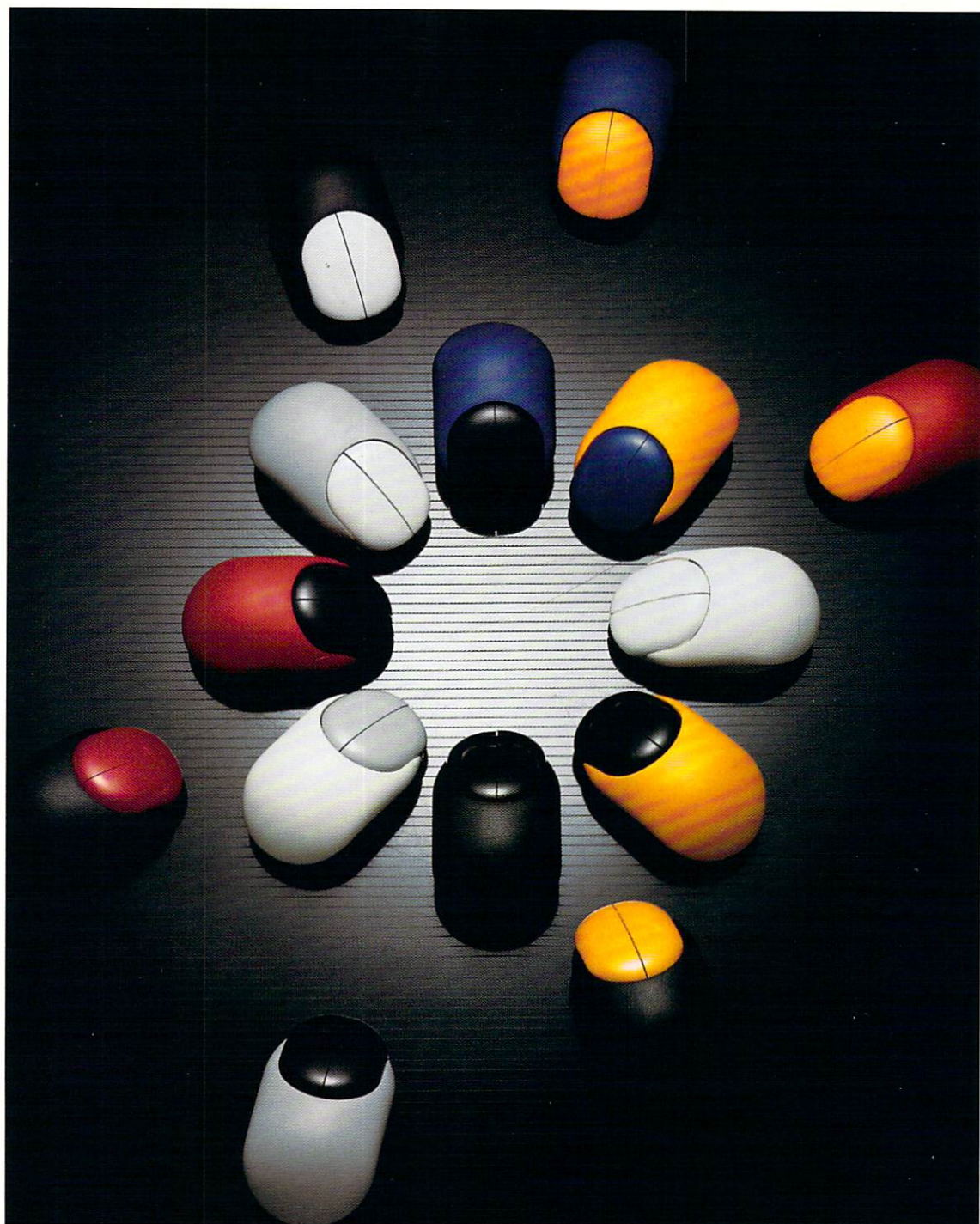
AC: Has GVP made a difference?

GG: I came to the Amiga to build a company. I was looking at long term. We have good products and we have good support. Whatever it takes to make the customer happy, we are willing to do.

AC: Where do you see the Amiga going?

GG: I believe that the Amiga is a product with its own synergy. From video to UNIX, we find the market very exciting.





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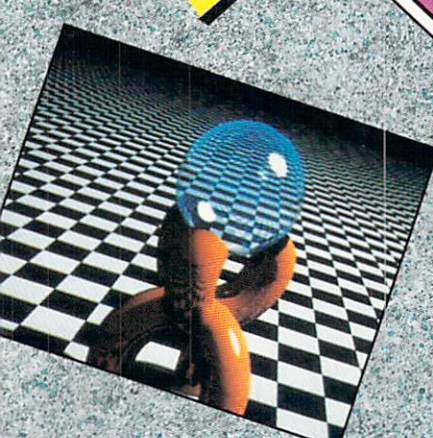
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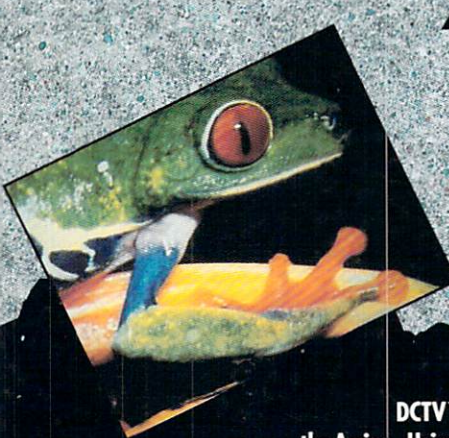
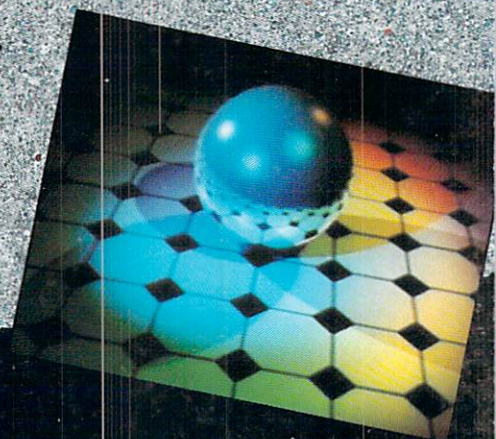


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